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ESSAYS AND MONOGRAPHS

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With Obituary Notice of the Society's late Treasurer

DR. SEDGWICK SAUNDERS.

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PREFATORY NOTE.

The present volume is somewhat miscellaneous in its character, and may in some sense be considered to mark an epoch in the Society's work. It has been decided during the next five years to devote the Society's funds almost exclusively to the production of a Clinical Atlas of Illustrations of Disease, and to abstain from undertaking the translation of any large works, and also almost wholly from the reprinting of the works of English authors. Under these circumstances it has been thought well to include in the present volume reprints of several short monographs by our own countrymen which have become matters of historical interest. In this category we place Dr. Hodgkin's original paper on the gland affection which now bears his name; Mr. George Bodington's paper on the open-air treatment of phthisis; three original papers by Sir James Paget, and a paper by Sir George Humphry.

The great loss which the Society has this year sustained in the death of its treasurer, Dr. Sedgwick Saunders, who had served it in that capacity for more than twenty years with great zeal, made the occasion appropriate for the publication of his portrait, together with a brief biography.

The collected papers of Dr. Braxton Hicks, edited and abbreviated by Dr. Horrocks, will, it is believed, be very

acceptable to a large section of our members, whilst the great interest which attaches to the history of the decline of Leprosy in Europe affords a justification for the publication of Dr. Ehlers' important Essay. This last has not been previously printed, and was generously offered to the Society by its distinguished author.

SELECTED PAPERS

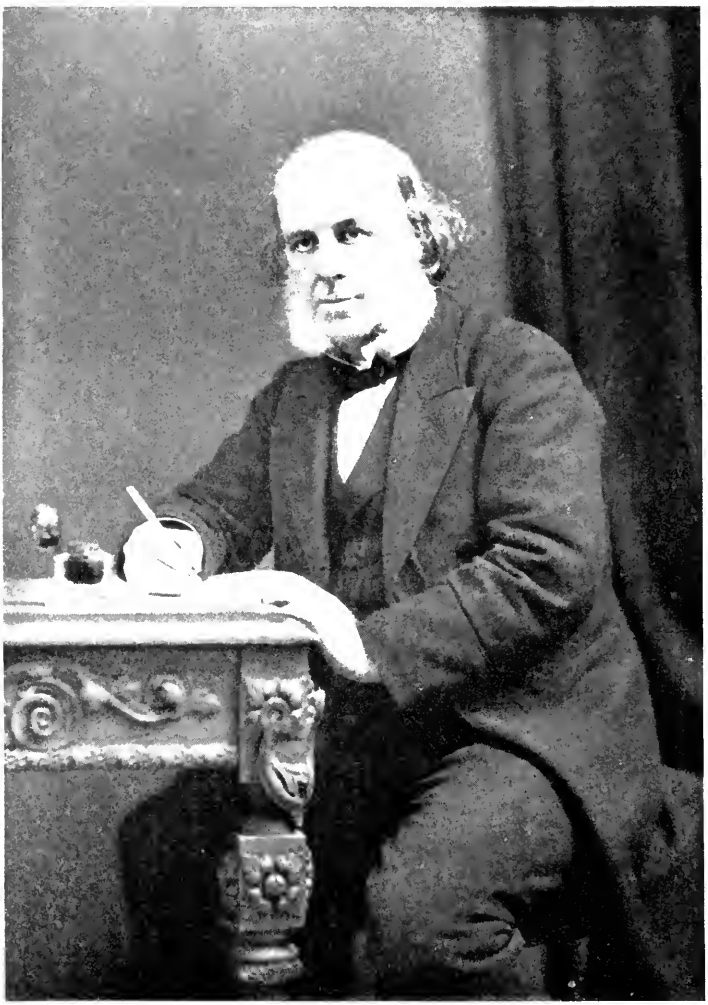
BY

DR. BRAXTON HICKS,

F.R.S., F.R.C.P., &c., &c.

WITH

MEMOIR AND PORTRAIT.



I am yours faithfully
N. Brayton Hicks

INTRODUCTION.

The late Dr. Braxton Hicks published a great many papers in various Transactions and Journals, and the New Sydenham Society having decided to publish a selection of them, the following four have been selected by Drs. Cullingworth, Herman and Horrocks.

No doubt the facts contained in them have long been incorporated into Medical Literature and are well known to the Medical Profession. But it was thought that each paper marked an epoch in Obstetric Science, and that the four together would represent Dr. Hicks's best work.

The very elaborate and complete Bibliography of his works, drawn up by Dr. Cullingworth, will no doubt be found of use to many.

ON

THE CONDITION OF THE UTERUS

IN OBSTRUCTED LABOUR;

AND AN INQUIRY AS TO

WHAT IS INTENDED BY THE TERMS "CESSATION OF LABOUR PAINS," "POWERLESS LABOUR," AND "EXHAUSTION."

It is not without some hesitation that I venture to bring the following remarks before the profession, not because the subject upon which it treats is unimportant in a practical point of view, but on account of the difficulty of finding a title which should indicate the principal matters to which I desire to attract attention, and on account of the ambiguity which exists in some authors, and of the difference between others respecting the conditions to be discussed, the same term varying in value with each author.

Again, it has been felt that the points which I am particularly anxious to render prominent have been not altogether overlooked by some; and that while, for the most part, the text books have been silent or ambiguous, it is possible that the facts are already recognised and acted upon by many of the observant.

Notwithstanding these feelings on my part, I have felt that the whole train of symptoms comprised under the terms "Cessations of the pains," "Powerless labour," and "Exhaustion," are so variously considered by authors, and the

whole phenoma not sufficiently apprehended by us in general, that if any effort could be made to clear up the matter it would be valuable as establishing our knowledge on a more definite basis; and this, with the additional facts which will be endeavoured to be brought forward, will, it is hoped, render considerable assistance in guiding us to the management of the anxious cases classed under the above quoted terms.

If, when it is asked what is meant by "Powerless labour," we turn for answer to authors on the subject, we find that only a few described it, and that these differ essentially. Thus, referring to the work of our president, Dr. Hall Davis ('Parturition and its Difficulties,' 1865), we find that he understands it as "Defective power in the agents of labour," and it is clear from his explanation in Chapter I., where he points out its various causes and treatment, that he intends it to be understood as irregular and feeble action, but not brought on by long and intense activity on the part of the uterus. Again, if we consult Dr. Churchill's 'Midwifery' (1867), we find a totally different state intended. Here it is a uterus worn out by long continued exertion, brought into a state no longer capable of contracting, attended by symptoms of increasing seriousness, and tending rapidly to collapse. He confines it to the *second* stage of labour, whereas Dr. Hall Davis does not so restrict it, indeed the causes he mentions would more frequently occur in the *first* stage.

Dr. Hodges alludes to it under the head of Exhaustion. "Labour complicated with Exhaustion" is the title of the chapter. "In very many instances," he says, "the delivery of the child cannot be accomplished in consequence of the want of power in the uterus, or in the general system. The uterine pains become more and more inefficient, until they are completely suspended, so that the child and mother perish without artificial assistance. This constitutes labour with exhaustion or syncope, the 'Powerless labour' of the British accoucheur. It is to be distinguished from inertia, or deficient excitement, by the fact that although there is a want of action in both cases, yet where there is a loss of power, stimuli have either no influence over the uterine functions, or such influences are transient and ineffectual."

And if we turn to the term "Exhaustion," we find great variety of description.

Some, as Dr. Osborne, look upon it as the flagging of the vital powers, and the precursor to collapse. Others, as for instance Dr. Dewees, would look upon it as rather a condition of inertia of the uterus from previous over-exertion; not looking on the state as one of extreme severity, as Dr. Osborne does.

Dr. David Davis thinks the term much misapplied. He is doubtful whether dangerous depression ever comes on within twenty-four hours from mere labour pains. He had never seen it, although, possibly from some other evils, symptoms of exhaustion might arise requiring interference.

Wigand, who has perhaps paid as great, if not greater attention to the abnormal states of the uterine action as any one writer on the subject, gives a chapter on Feeble Pains, wherein he uses the term "Atony," "Asthenia," "Adynamia" of the uterus in the same sense as Dr. Hall Davis does powerless labour as above quoted; not so much referring to it as connected with powerless labour as described by Dr. Churchill.

He divides the case into three classes.

In the first two the pains still exist, but are either feeble or irregular, or with long interval.

In the third they are entirely absent, which he calls either Lassitudo, Exhaustio, or Paralysis Uteri.

Again, in looking to other works on midwifery, we find that the serious symptoms called "Exhaustion," by some, and "Powerless labour," by Dr. Churchill, are considered to spring from contusions caused by the pressure of the child's head. Dr. Blundell so considers it; and it is evident on perusing his lectures that he attributes all the formidable symptoms to the injury done to the soft parts by the bruising and contusion produced by lingering and laborious labour.

Many authors, on the other hand, make no allusion to the immediate cause of the untoward symptoms, but merely state the fact generally as the result of laborious labours.

If now we look into the meaning of the term "Cessation of the labour pains," or "that the pains had ceased," we find

authors, as a rule, express themselves indistinctly as to the condition of the uterus. Generally we find it said that, the pains having continued very severe for some time, the uterine power becoming exhausted, the frequency of the pains decreases, and they become feebler gradually, till at last they cease altogether, and the patient falls into powerless labour, or into a state of exhaustion. No very distinctive symptoms are mentioned whereby the temporary passiveness of the uterus is to be known from that state which leads on to the more serious state, though an attempt is by some authors made to explain, that in one case the exertion has exhausted the *muscular* power of the woman, while in the other her *vital* powers are exhausted.

Dr. Churchill, in discussing the reason why the former kind occurring in the first stage is slow in running on to serious mischief, while in the second stage the dangerous symptoms ariseso much more quickly, professes himself unable satisfactorily to explain the reason. "It may be," he says, "that the first stage is more local, the second a more constitutional process; that in the latter, different systems of the body (vascular, nervous, muscular, &c.) are deeply involved."

Dr. Dewees looked upon the subsidence of the pains, after long continued labour, as the result of the over-exertion of the uterus, and that in such a case the failure of the pains was accompanied by the failure of the general strength, as shown by the symptoms which are described as "Powerless labour" by Churchill.

Dr. Osborne looked upon the occurrence of these symptoms as a sign that the *vis vitæ* is exhausted and greatly reduced, if not irrecoverably, and points out their danger, and the necessity for artificial aid.

This is the general tenor of the observation of authors on the subject. I have been able to find but two Englishmen who seem to have observed the real condition of the patient in obstructed labour, Drs. Murphy and Rigby. Dr. Murphy in his lectures notices the temporary suspension of the activity of the uterus when any obstacle prevents the exit of the fœtus; and he describes the return of the pains at first with short duration and quickly renewed, then with either

increased force, or with a second subsidence, if the obstacle be insuperable. If they continue with renewed force, "the pains are very short, extremely severe, and in their interval the patient still complains of pain and feelings of soreness." He then proceeds: "If the uterus be examined through the abdomen, you will observe a very perceptible difference in the sensation it communicates. It feels almost as hard and contracted during the interval as during the pain; the patient cannot bear the abdomen touched. Besides this alteration in the character of the pains, we have other symptoms, both local and general, to guide us." He then describes the symptoms called by Dr. Churchill "Powerless labour." Dr. Rigby* describes it in nearly similar words.

In Velpeau and Caseaux I find no allusion to the subject. A short notice on irregular pains is given, and Velpeau alludes to Wigand's tetanus uteri.

Having thus, as far as I am able to interpret them, briefly reviewed the opinions of the principal authors on midwifery in this country, let me proceed to indicate what appears to me to be the train of symptoms which occur in a case of labour when, free from any cause of obstruction, the fœtus cannot be expelled from the uterus; and to indicate the value to be placed upon these symptoms as a warning of danger, and as a guide to our conduct in the treatment of these cases of dystocia.

But before doing so, I think we shall gain a more distinct appreciation of the value of the symptoms if, as concisely as possible, we pass in review, from our present standing ground, the facts which are admitted to exist in process of natural delivery. And this must be my apology to the Society if in so doing I seem to introduce mere commonplaces.

Now, the following are taken to be admitted facts, whatever may be the immediate cause of labour:—

1st. That when the head of the fœtus presses against the os uteri, reflex irritation is excited, and the uterus contracts in a rhythmical manner for a certain period, so long as the labour is proceeding naturally.

2nd. That when the head escapes through the os, the

* "System of Midwifery" in 'Lib. of Prac. Med.'

reflex excitement is increased and more powerful uterine action results.

3rd. That, in addition to the simple uterine action, the respiratory and abdominal muscles are called into play, whereby a mechanical pressure is exerted on the outside of the uterus, increasing the effect of its own efforts to expel the fœtus.

4th. That as the fœtus descends the reflex excitement in the same proportion increases, acting on the uterus and on the external muscles just referred to, so that when the head or presenting part has arrived at the vulva the excitement is at its greatest, which, continuing its effects after the removal of the fœtus and the placenta, keeps up the uterine contraction, and thus secures the patient from atony and its effects.

Again, I think it will be by all agreed that, however readily the constitutional effects of the pains pass off when there is a fair interval between each, yet there is with every one a demand on the nervous power of the patient.

Consequently it must follow that the more frequently they occur, the longer they last, and the more violent they become, the more readily and completely they drain the nervous power, and the earlier exhaustion arrives.

Perhaps one is likely to overlook the great demand made on the system by the action of the uterus. But those who have suffered from tenesmus of rectum or bladder can in a slight measure appreciate it, by the recollection of the exhaustion and depression thus caused. When therefore the large area of the uterus is considered, and the enormous power it puts forth,* it will not be so difficult to apprehend the nervous force consumed by every vigorous contraction. During the interval, however, in natural cases, no doubt the system is equal to replenish the loss without showing untoward symptoms to any serious extent in the generality of constitutions; but women vary much in this particular: some suffering from exhaustion much more severely than others, and at a much earlier period. And this does not seem to be dependent upon the general muscular power, and what is

* See 'Edinburgh Monthly Review,' August, 1867: Dr. Mathews Duncan's paper.

popularly called strength of constitution; but rather upon the natural power of endurance evinced in mental exercise, and shown by fortitude and vigour of character. Be this as it may, it is notorious that we find a great difference in our patients as regards their power of endurance of prolonged demands on their nervous power.

If, then, the above be admitted as facts, it must necessarily follow, that if instead of the ordinary intermission between the pains these latter are repeated so closely as to leave scarcely any interval, more especially if this rapidly recurring action be continued over a considerable space of time, we should reasonably anticipate that all the sooner we should find that the powers of the system would begin to yield.

Still more reasonably should we anticipate the earlier arrival of serious symptoms, if, instead of the pains being intermittent, the uterine action became continuous.

Now, if all these points be received, it seems that we have a very clear explanation of the fact referred to by Dr. Churchill and others, namely, that symptoms of exhaustion come on rather in the second stage of labour, *i. e.* when the head is in the cavity and at the vulva, than in the first stage, *i. e.* while the fœtus is wholly in utero.

As a practical fact, we know that reflex action is but slight before the os uteri is expanded. This is a wise provision of nature whereby the ovum is allowed to develop itself in and to distend the "Corpus uteri" without much chance of its being expelled.

We also know, as a practical fact, that till the head has entered the os uteri the fœtus may remain in utero in actual labour for some days before serious symptoms arise; and that during this time the pains are slight, and as a rule infrequent. But, notwithstanding this slow development of the reflex function, and the postponement of the evil hour, I think we are incorrect if we admit that it does not arrive at all, as would seem implied when restricting "Powerless labour" to the second stage. It must surely have been by most of us observed, and that not infrequently, that the same condition of uterus and of the system has arisen while the fœtus is still in utero. The only difference which I have been able to

notice being that the exhaustion-symptoms are slower in arriving; and that the labour is unaccompanied by the forcing pains which belong to the second stage.

These remarks apply for instance to cases of hydrocephalic head; rigid os uteri; spasmodic states of uterine walls, and contracted brim where the head cannot at all enter, &c.

As soon as the os uteri has allowed the head to pass through it, we then find an increase in the pains, and this, as before stated, is more marked the lower the head descends. This is partly owing to the more numerous supply of nerves to the part pressed upon, but also partly to this, namely, that a larger surface of passage is exposed to the irritant the lower it descends.

A third reason may be found in the fact that the soft parts with their nerves are subjected to pressure between two bones. This position at first increases the reflex irritation, and consequently the uterine contractions. After a time if detention ensue the system is affected seriously, first by nervous exhaustion, and secondly by the bruising and sloughing of the soft parts thus compressed.

It is difficult to say how much more effect on the system is produced during labour by the head in the cavity than whilst it remained in the uterus, but, judging from the average duration of full labour with injury accruing, it would probably be about ten to twelve times greater; and from eighteen to twenty times as much when the head is impacted at the outlet.

Supposing the head did not present, but some softer part as the breech, arm or leg, then the reflex irritation will be less, and therefore labour will be longer borne than when the head presents, as is well known to be the case. Besides, there is scarcely any injury to the maternal structures done by bruising in these cases, so that the symptoms observable are chiefly if not entirely owing to the irritation and demand made on the nervous system.

As above remarked, it would seem as if in the ordinary intermission of pains in a natural labour, the nervous force, whatever that may be, is replenished without any serious demand on the system; but that when the pains recur closely

and each one is of long duration; or if they continue for a longer period than usual, then symptoms of nervous exhaustion are observable in a greater or less degree sooner or later, according to the demand upon the patient and her power of supplying it.

And here it may be remarked that, in calculating the demand made upon the nervous system by uterine exertion, there is a tendency to gauge it by the exhaustion produced by exertion of the voluntary muscles; whereas we should consider that in a great measure the process of labour is carried on by the exertion of the largest involuntary muscle in the body, the supply of whose nerve-force is directly and principally from the sympathetic system, the great nerve of relation whereby the general vital powers are immediately influenced, and impressions made upon the circulation in a much more rapid manner than by the exercise of the voluntary muscles.

That this consumption of nerve-force is the cause of the rise of the pulse, and of the other earlier symptoms indicative of danger, rather than to bruising or injury to the soft parts, as was held by Blundell,* seems to be shown by the fact that in the majority of cases of head presentation, when exhaustion had seriously appeared, no symptom of any such injury has subsequently shown itself; and also that in cases, as before alluded to, where the softer parts of the child presented, serious symptoms have arisen notwithstanding; and again, where delivery has been effected after their supervention, the complete subsidence of untoward symptoms after delivery without the evidence of any local mischief is, it would seem, sufficient to show that the removal of the excitor of reflex irritation is the cause of the improvement; and consequently that the prime cause of the trouble was simply the presence of the fœtus.

From the above considerations, then, it seems fair to assume that the symptoms of so-called "exhaustion" arise from an unusual irritation of the reflex function, causing a greater exaltation of the muscular energy, principally of involuntary fibre; and thus an excessive demand is made on

* See 'Lectures,' *supra cit.*

the nervous power of the sympathetic system. This applies to the earlier condition of obstructed labour. It is freely admitted that, later on, when sloughs and other injuries have arisen with or without fœtal putrescence, the symptoms are materially increased.

It was remarked above that if we found the intermitting but rapid action of the uterus liable to produce serious symptoms, we should fairly expect these would the earlier arise if the pains were continuous.

It is to this point that I now wish to direct attention.

I have constantly found that in those cases of detained expulsion of the fœtus where serious symptoms have already risen, or have done so subsequently (I mean such symptoms as have been tending to the powerless labour of Churchill), and in which cases it is at the same time said that the pains have gone off, that the uterine contraction has not really gone off, but that a state of universal continuous action has been substituted for the ordinary rhythmical pains. The uterus is really more active than ever, but its action is grasping, not expulsive; and in proportion as the true pains die out, so this continuous action takes its place.

It has already been mentioned that the only authors I have succeeded in meeting with who have shown this state of uterus during the intervals of the pains are Drs. Murphy and Rigby. But they do not describe it as extending beyond their cessation of the pains; nor does it appear that they attribute the serious symptoms to the nervous exhaustion so produced, but rather to the injury done to the soft parts and to the inflammation as a consequence.

Wigand in describing the "krampwehen" or spasmodic pains describes the universal contraction of the uterus under the name of tetanus uteri. This, it appears to me, he looks upon as the cause of the detention of the child, and not as produced by the prolonged irritation of labour. He says, among other causes for anxiety, we are to fear when the pulse rises and becomes small and weak. Inasmuch as he classifies it with irregular action, and partial spasmodic conditions of the uterus, as a cause of tedious labour, it is clear that he does not consider it as the precursor and cause of the serious symptoms.

He makes a remark in his chapter on *inertia uteri*, "that in the highest grade of this condition the pains are totally absent, except a small constant universal action in some exceptional cases." These cases, no doubt, belong to the condition now under consideration.

Those authors who have made a separate section of the abnormal condition of the uterine pains have pretty closely followed him.

But I would go further and say that, by whatever cause the labour be obstructed, whether by contractions, &c., of the softer parts or of the bony parts, or by the irregular spasmodic action of the uterus itself, sooner or later the rhythmical pains merge into the continuous action till the latter remains alone; and that when this takes place it is the precursor to the symptoms of "Powerless labour," "Exhaustion," &c.; the period at which this takes place being, of course, influenced by the susceptibility of the person to reflex excitement and other circumstances to be mentioned below. That as soon as this condition of constant action commences those symptoms gradually commence which have been held as indicative of the necessity for artificial delivery, such as the rise of the pulse, dry tongue, hot skin, &c. And I would also remark that where, after hard labour, these symptoms have occurred, and the pains have been said to have ceased, we shall find the uterus in the state of permanent action; with the rare exception of those cases where the uterus has ruptured or violent mental emotion has subjugated its power.

It must not be from this gathered that the supervention of the serious symptoms is strongly and decidedly marked; on the contrary, as is well known, they are generally slow and insidious in their approach, but, if we watch carefully, the coincidence of the occurrence of both is not difficult to observe; generally speaking, the first symptom is anxiety of manner and countenance, somewhat similar to that in retention of urine. There is generally a great anxiety on the part of the patient to be relieved by operative help. Then the pulse rises, tongue is creamy and then brown, and then follow the other well-known symptoms well described by many authors, and which need not be here repeated.

How long before death the continuous action of the uterus relaxes it is uncertain. That it continues to the very verge of dissolution I have seen in a case of arm presentation to which I was called after nearly a week's labour, and three attempts to turn. The patient was scarcely able to articulate; tongue very brown; pulse 150 p. m. Even under the influence of chloroform no change from its excessive rigidity took place till a few minutes before death; so hard was it in all parts that it bore no resemblance to living contracting tissue.

Now, when hard labour pains have existed some time and we find the rhythmical action has subsided, we have one of two conditions, the discrimination of which is very important as a guide to our proper treatment.

The first and simplest form is well known, and is that in which the uterus is simply quiescent, resting passively for a time while the nervous power is being, so to speak, collected; after a time the uterus begins to act and the labour is accomplished. Now, in this case there is no rise of the pulse; generally, on the contrary, it is weak and feeble; nor are there any untoward symptoms but languor and possibly some faintness. In these the reflex function is deficient, and its action sluggish, and, therefore, the demand on the constitution to supply nerve force is proportionately small.

How can we further distinguish this class? Place the hand on the uterus externally, and through the abdominal walls it will easily be detected that the uterine walls are lax and flabby, the fœtus readily detected within it floating about with ease.*

So long as this condition lasts it will very rarely be found that we have any change from the natural condition of the patient, consequently but little, if any, cause of anxiety, nor generally for manipulative interference. There may be rare exceptions, such as already indicated, in which, with a lax state of the uterus, we have a failing pulse and other serious symptoms, collapse, &c.; but I think that when they do occur they are an indication of some serious lesion having taken

* Wigand remarks in these cases, "The fœtus is very movable in the uterus."

place, rather than a state of simply nervous exhaustion or "Powerless labour," so rare is it that one sees a simply quiescent state of the uterus attended by symptoms of "Powerless labour."

The second form of subsidence of the pains is, as already indicated, of the opposite character. The uterus becomes gradually irritated, so that, although some of the pains still occur at irregular intervals, the uterus is really in more action than before, tightly compressing the child, falling into the inequalities of its form, whereby the fœtus is prevented from escaping, every indentation of the uterus forming as it were a ledge past which it is difficult to draw the child, or to pass the hand if we desire to turn.

When this condition, more frequent than generally supposed, and not infrequent in primiparæ, has once been fairly established, it is rare that the rhythmical pains ever occur with such force as to expel the fœtus: as a rule, the continuous action remains, and sooner or later symptoms set in, telling one of the necessity for interference.

How can we tell that this condition exists?

It is seldom requisite to do more than examine the state of the uterus through the abdominal parietes, occasionally it may be necessary to pass the hand within, past the presenting part. If we place the hand externally we shall find, during the intervals, what pains remain, or if they are wholly absent; the uterus hard and firm, and tightly moulded to the form of the fœtus, which, unlike that which was before noticed in the former class, cannot be swayed about, but the whole mass is more or less fixed. It occasionally happens that the fœtus is rolled up into a globular form, having lost the ovoid, and this is most common where the child is dead. In either case the want of mobility on the part of the fœtus is a distinguishing sign of this contracted state of the uterus.

Another sign will also readily help us. If it be the contracted uterus, resonance on percussion will exist up to the margin of the hard body. If the uterus be lax, then dullness will extend beyond the hard body.

A proper consideration of these two forms of deficiency of the rhythmical uterine action enables us to decide upon the

proper mode of treatment with great distinctness, and it will materially help us also to do so at an early period—earlier, indeed, than generally has been held possible.

If it is true, as already stated, that when the clamping continuous action of the uterus has once begun, there is very rarely any hope that the rhythmical expulsive pains will again preponderate to such an extent as to expel the fœtus at least unaided; and as we know that the action of the ergot of rye is to cause this very action, if it fail to cause expulsive pains, and to increase it when present, it is clear that the administration of this drug should be avoided in this state of affairs. I am not prepared to affirm that it may not, in some few cases, again rouse the expulsive pains sufficiently to expel the fœtus, but its use must under the circumstances be attended with a degree of risk such as it seems very undesirable to incur.

But if there be this objection to the use of secale and other uterine stimuli, there is on the other hand a clear and distinct indication in favour of operative interference; the mode in which it is carried out of course depending on the nature of the case, but that which is accomplished by means of traction would suggest itself as being the best, inasmuch as it would enable the fœtus to pass through the uterine grasp, and to distend the contracted portions.

An example of this class of cases is not infrequently found in a primipara in whom, notwithstanding uterine pains have continued for a long time, no progress has been made. On examination it will be found that, although the head of the child have escaped the os uteri, the shoulders are caught either by the os uteri itself, or by a contraction a little way above it. When the detention has continued a certain time, the rhythmical pains gradually merge into the continuous form, and then it is very rarely that the fœtus is naturally expelled, particularly so if, secale having been given, it has failed to extrude it. Then, unless timely assistance be given, the fœtal life is extinguished, symptoms of irritation, then of exhaustion come on, followed by putrid decomposition of the fœtus, and the patient sooner or later succumbs. Thus a comparatively small obstruction occurring, delivery by natural

powers is made nearly impossible by the grasping uterine contraction. It matters not, however, in what part of the parturient passage the hindrance is situated, its position only affects the period and rapidity of the occurrence of the serious symptoms.

There is no doubt but that in some cases where the case is taken early, the continuous action yields to the influence of chloroform, but inasmuch as this remedy also, in a certain degree, diminishes the expulsive pains, it is by no means certain that its use will be succeeded by progress; on the contrary, it may be said that, with the exception of contracted states of the os uteri, the cases are rare in which expulsion of the child would occur after its use in the circumstances just narrated.

From a consideration of the above circumstances we may deduce the following as our rule both as to the time and the mode of our rendering assistance,* namely—

If on placing the hand on the uterus externally we find it firmly contracted around the fœtus between the pains (the observation of this point being made over a sufficient period); or if there being no pains we watch for some time and find no relaxation, we may be nearly certain that further waiting will affect no good; and therefore, in other words, it is worse than useless to postpone assistance any longer, and this rule will be still more distinct if we find the pulse rising, the countenance anxious, and much distress felt in the uterus.

If on the contrary we find the uterus lax, then we may safely wait as long as the pulse be quiet; to this, perhaps, an exception may be taken, where in certain cases the head may be firmly impacted in the cavity of pelvis by the pains which preceded the state of relaxation. In such case we might wait safely if we could push back the head a slight degree so as to remove the persistent pressure on the maternal soft parts,

* It is by no means here intended to be implied that the forceps are not to be applied in cases where no continuous action has occurred; it is only meant that when it has occurred our line of practice is quite clear; neither is it affirmed that we are to wait always till the continuous action has begun.

being of course ready to employ artificial aid if the recurring pains were not sufficient; otherwise, if much time elapse, it will be necessary to interfere to rouse the pains or draw the head through.

Should the pulse rise, or vary much, or other general symptoms arise when the uterus is relaxed for some time, it is more than probable that some lesion has occurred, or some unusual condition has interfered, such as an attack of an exanthem, pneumonia, &c., for the cases are rare indeed in which the "powerless labour" in Dr. Churchill's sense is present without the condition of continuous contraction having preceded it, if we except that state which is induced by violent mental emotions or rupture.

It has been given as a rule by some authors that abstraction of the child should not be done unless there are pains present to assist the withdrawal of the child, secure the expulsion of placenta, and keep the uterus well contracted after. To a certain extent this is a safe rule, but it is one which is indefinite, because the "pains" may be absent, and yet the uterus very active, over-active indeed, as has already been pointed out, and even if it be not, yet it is found that when the head is drawn down the uterus does contract after.

What are the explanations for these facts?

When there is the continuous action we may safely draw down the fœtus with proper rapidity without fear. The uterus contracts firmly on the receding contents, and even sometimes the rhythmical pains are again re-excited, and the placenta is expelled naturally, the uterus remaining well contracted afterwards. Sometimes the uterus continues so firmly contracted after the withdrawal of the fœtus, that the placenta is held as firmly in its grasp as the fœtus was, so that it has to be removed by artificial aid.

But where the uterine walls are relaxed, it doubtless is the best plan to endeavour to rouse the uterine action by oxytoxics, such as secale, &c., but it not infrequently happens that when the head is drawn down to the outlet reflex action is excited so much as sometimes to assist materially in the expulsion of the fœtus, and to secure the expulsion of the

placenta and uterine contraction after. Yet the removal of the child under these circumstances is attended by some risk of hæmorrhage, especially if the child be extracted too rapidly; and if the uterus does not respond quickly to the fresh irritation. It would be best in these cases to give a trial of secale first of all, and if then no action ensue, the head may be slowly delivered, and the remainder of the body allowed to remain for a time in the passages to stir up the uterine activity, while, in the mean time, we employ the various other means known to be capable of rousing expulsive pains; and this would be the rule in those cases where there is clearly such an obstacle to the birth of the child as in any case would demand traction, but where the pains had subsided and the uterine walls were lax.

Thus we may briefly say that, in both cases of absence of the pains, we may do well (with due care) to use extraction. That *extraction* is peculiarly required in the cases where *continuous action* has supervened, while secale is detrimental; but that *secale* and uterine stimuli are of great service where the uterus is *relaxed;* while extraction (if adopted) should be employed with slowness and caution.

It is proper to state that it is not intended to be said above that a contracted state of the lower segment of the uterus as revealed to the hand passed internally, necessarily implies a generally contracted condition, because the fundus might be coincidently relaxed, and if extraction were made suddenly, hæmorrhage might occur above the constriction from the relaxed upper portion.

The following is a *résumé* of the principal points desired to be established in the foregoing paper:

1. That it is very rare to find symptoms of "Powerless labour" (Churchill) where the uterus is relaxed.

2. That where serious symptoms have begun, and at the same time the pains have apparently ceased, it will almost invariably be found that the uterus is in a state of continuous action.

3. That the continuous action is the cause of the symptoms of "powerless labour."

4. That the times at which these symptoms arise vary considerably according to peculiarity of the patient, the violence of the action, and the position and presentation of the child.

5. That if the constant contraction be fully established it is better to deliver the child artificially, unless we first try the effect of chloroform.

6. That the effect of the continuous action is exhausting to the mother, and liable to be fatal to the child.

7. That the use of secale is contra-indicated in such cases.

8. Where the uterus is lax we can generally wait a considerable time without danger to the patient or to the child. When the uterus has been allowed time to recover its nerve force, then it is advisable to give some oxytoxic, as secale, &c. If this fail, we may then draw down the head to the vulva slowly and cautiously, which will probably induce uterine action. The removal of the child must be done cautiously, and only as we find the uterus to respond.

No case has been added in confirmation of the above remarks, because, in a large number of examples which it has happened to me to have seen, I am not aware of any exception. Doubtless there are cases which, examined in the intermediate stage, that is, at the commencement of the continuous pain, where we have the irregular contractions described by all authors, might for the moment be deemed as exceptions; but if sufficient time be taken to observe the uterine state, it will generally be in our power to say whether it exists or not over the whole organ. It may be asked: For what period are we to extend our observations before we can be sure of the real uterine condition? Perhaps a quarter of an hour will be enough for all cases, but less will often suffice. The hand need not be all the time over the uterus, but should be during the intervals of two or three pains. This should be repeated two or three times during the quarter of the hour. If we upon each occasion find the uterus contracted firmly, we may conclude that continuous action has supervened.

No attempt has here been made to explain the difference between the rhythmical action and the continuous. Numerous

explanations might be ventured upon, but in our present knowledge we are unable to determine how far it is owing to anatomical arrangements, or to an alteration of the peristaltic wave.

One other subject remains for consideration. It appears to me that the most satisfactory basis for classifying dystocia is that founded not on the duration of labour, nor upon the fact as to whether instruments are used or not, but upon the more simple one of *Cause*. For instance, taking A. The uterus as a (1) motive power; then (2) as part of the parturient passages; B. The vagina; and C. The pelvic bones. The troubles which arise from abnormal conditions of the ovum would necessarily follow next. After which the complications of labour, as convulsions, &c., would be given.

In the introduction to dystocia it would be pointed out that from whatever cause in whatever part a detention arose, certain symptoms sooner or later appeared which, continuing unrelieved by art or nature, ended fatally. The variation of their occurrence in time, in intensity, and in rapidity, according to the position of the fœtus, and its presentation, would be specially indicated. It would, therefore, only be necessary when speaking of each cause to allude slightly to these points, proceeding quickly to the appropriate treatment. This basis is of great value, clinically, for the mind, on finding a detention of labour, will at once seek for the cause; this having been found, the knowledge of the effects of the persistence will lead it to seek also the remedy, whether by natural powers or by art. Whereas the practitioner must wait till labour is over, if he endeavours to distinguish whether it be a lingering, laborious, or powerless labour; or complicated with the use of instruments. It may be asked: Does this really signify? I believe it does much. A clear and immediate perception of the cause leads one instinctively to the means required for the solution of the difficulty; whereas, where we must wait till the end of labour to classify it, the mind is naturally apt to wait for a longer period before it seeks the appropriate treatment, and then it must of necessity fail to find the rules of management, because, before it can do so, the case must be over. It is true that the elder

practitioners would intuitively classify by the cause, and remedy it accordingly, but the younger practitioners must be more or less confused by it; and even the elder one is doubtless in some degree influenced, at any rate he is not assisted by it, as he would be by the other plan.

ON THE

CONTRACTIONS OF THE UTERUS

THROUGHOUT PREGNANCY:

THEIR PHYSIOLOGICAL EFFECTS AND THEIR VALUE IN THE DIAGNOSIS OF PREGNANCY.

I am anxious to direct the attention of the profession to a point connected with the pregnant uterus, which has been almost entirely and surprisingly overlooked, as far as my researches into authors lead me to believe. Perhaps the following quotation from Dr. Tanner's work 'On the Signs and Diseases of Pregnancy,' p. 118, 1860, will best show the state of our knowledge and the authors who have alluded to the subject:—

"More than twenty years since Mr. Ingleby observed that 'in advanced pregnancy the uterus, when moderately grasped and rubbed, slightly hardens and almost instantly regains its yielding condition.' Dr. Oldham has since pointed out that this power of contraction possessed by the uterus may be taken as a trustworthy characteristic of pregnancy; for he states that the large gravid uterus alters in a marked manner, under the influence of pressure, from a state of flaccidity to one of tension. Thus, if we expose a pregnant woman, the outline of the tumour is seen to be less defined before manual examination than it becomes afterwards; for, on applying the hand, the tumour, which at first is felt soft and ill-circumscribed, rapidly assumes a tense rounded form, becoming firm and resisting. According to Dr. Oldham, no other tumour but the pregnant uterus possesses the power of altering its form when irritated by palpation; but I must here beg to differ in opinion from this gentleman. Only a short time

since I was examining the abdomen of a poor woman suffering from an attack of flooding, caused by the presence of a very large polypus in the uterus. The loss of blood had been very great, so that all the tissues were relaxed and flabby; and on placing my hands—which were very cold—over the tumour, I distinctly felt an increased rigidity of the walls of the uterus. The truth, indeed, appears to me to be this—that the uterus, in common with other hollow viscera, has, when enlarged through the presence of any substance in its cavity, a regular peristaltic movement consisting in slight contractions and dilatations. Under the influence of the former the outline of the organ can be easily appreciated, other conditions being favourable, and these contractions are undoubtedly the more evident the greater the size of the womb, and the more it is irritated by external manipulation. But as it seems that the peristaltic motions occur whenever the uterine cavity becomes enlarged from any cause, it necessarily appears objectionable to instance such movements as a trustworthy sign of pregnancy."

To these remarks of Dr. Tanner's I may add a remark of Dr. Montgomery's in his work 'On the Signs of Pregnancy,' p. 100. He says :—" The uterus within the first four months has a feel of a soft, though pretty firm, fleshy tumour, not sensitive when pressed, of a uniform smooth surface, and of such a size as would be without difficulty grasped in the hollow of the hand. After this period, that is, from the fifth month, it loses somewhat of its firmness and distinct feel, owing to the greater expansion and consequent lengthening out of its fibres, which continuing to increase as pregnancy advances towards its termination, the circumscribed organ becomes less and less distinguishable; though generally to be detected by making pressure with one hand while we examine with the other, in doing which we also ascertain some degree of obscure fluctuation, but in the same proportion as the parietes of the organ become indistinct, its solid contents are more easily felt, and even separate limbs may be recognised and traced; the firmness of the tumour as well as the degree of fluctuation which it affords will very much depend on the size it has acquired or the natural firmness or supple-

ness of its structure, and on the quantity of liquor amnii. Owing to the variation in these causes a corresponding degree of difference will be recognised in its consistence in different instances, so that, while in some persons it is so soft and yielding as hardly to be felt, in others it presents a degree of solidity amounting to absolute hardness, though still healthy, and retaining its round or oval form and its uniform smooth surface."

Dr. Priestley* remarks only thus far, p. 83:—"There can be no doubt, I believe, that it possesses contractile properties (before impregnation), as it expels blood-clots, dysmenorrhœal membranes, and intra-uterine polypi. During the extrusion of these we may sometimes distinctly recognise the alternate hardening and relaxation of the organ by placing the hand over the hypogastric region. Its muscularity at the full term of pregnancy scarcely admits of room for controversy." He then instances the pressure felt on your hand during a pain, &c. He thus passes over the contractility during pregnancy.

It is evident that Dr. Montgomery did not recognise intermittent contractile power in the uterus, but thought the difference he had noticed was owing to an inherent difference in the tonicity of the tissues in different persons. It does not appear how far Dr. Tanner's opinion as to the peristaltic movements was based on facts observed by himself in the different stages of pregnancy, because he gives no further information on this point, or whether his opinion was formed by a consideration of the analogy which the uterus distended bears to other hollow contractile organs.

Dr. Tyler Smith is much more clear regarding the contractions of the uterus, and foreshadowed in a measure the substance of this paper; but the contractions he instances are those which are caused by excitation, as the context shows. In discussing the position of the fœtus in utero he considers that the peristaltic action of the uterus has as much influence as the movements of the fœtus itself on its position. These movements he attributes to reflex irritation, derived from various causes of excitation. He believes very strongly in these movements as being of even greater frequency than the

* 'Lectures on the Development of Gravid Uterus,' 1860.

movements of the fœtus within it. Thus: "I have no doubt of the frequent movements of the fœtus in utero, but wish to insist upon the equal or even still greater frequency of the movements of the uterus itself."

Again: "With this change of shape the uterus acquires more power of muscular contraction, and becomes the subject of reflex and peristaltic movements."*

These passages from Dr. Tyler Smith's thoughtful work on 'Midwifery' show that he had a very clear perception of the movements of the uterus, but I gather from them that he looked upon them as being excited by various accidental causes of a reflex kind, which he enumerates at p. 197. It may be that the frequent and almost regular movements I shall describe are really due to reflex action, but they are best observed in complete passiveness of the woman. It may be that the semi-stagnant state of the blood in the uterine sinuses, &c., may provoke contraction, but certainly there is some other excitor than either the fœtal movements or the irritation of the various nerves in sympathetic communication with the uterus. These remarks of Dr. Tyler Smith were made two years before the appearance of Dr. Tanner's, but probably they had not arrested his attention. In any case subsequent authors are silent on the subject, so far as I can find, both at home and abroad.

It was a source of difficulty to the older obstetricians to explain how that, at a certain time—namely, at the full period of pregnancy—the uterus, passive up till then, began all at once to acquire a new power, that of contracting; forgetful that, long before the full period had arrived, the uterus has the power to expel the fœtus, and, under mental excitement or local stimulation, attempted to do so frequently.

But, after many years' constant observation, I have ascertained it to be a fact that the uterus possesses the power and habit of spontaneously contracting and relaxing from a very early period of pregnancy, as early, indeed, as it is possible to recognise the difference of consistence—that is, from about the third month.

When the uterus is normally placed, it is, of course, difficult

* 'Manual of Midwifery,' p. 217, 1858.

to make it out till a little after that time, but in the case of retroversion accompanying pregnancy, then the fundus being readily felt per vaginam, the contractions can without any difficulty be perceived.

Up to the end of the second month the walls are still dense, but after this time the fundus, as can be noticed if the uterus be retroverted, will begin to be elastic, and variation in its consistence is recognisable as the end of the third month is approached.

If, then, the uterus be examined without friction or any pressure beyond that necessary for full contact of the hand continuously over a period of from five to twenty minutes, it will be noticed to become firm if relaxed at first, and more or less flaccid if it be firm at first. It is seldom that so long an interval occurs as that of twenty minutes; most frequently it occurs every five or ten minutes, sometimes even twice in five minutes. However, in some cases I have found only one contraction in thirty minutes. The duration of each contraction is generally not long, ordinarily it lasts from two to five minutes. When the uterus is irritable or has been irritated it lasts longer than this; under particular circumstances, to be alluded to again, it may assume an almost continuous action analogous to that which is noticed after long obstructed labour.

Supposing, then, we commence our examination when the uterus is contracted, we find the organ firm and solid, somewhat like the uterus affected by a fibrous tumour. Gradually this state alters, the walls becoming softer and ultimately so flaccid that their outline can be hardly made out, unless the other hand be placed on the os uteri per vaginam, and even then sometimes with difficulty. So also, if we commence our examination when the uterus is in its flaccid state, it will at first be very ill-defined, so that, if we are careless or too rapid, we might readily say that there was no pregnancy; but shortly the shape of the organ gradually becomes more and more distinct, till we have no doubt but that we have an enlargement of the uterus to deal with; after a time the firmness abates, and gradually the original condition of relaxation is complete.

If we more carefully investigate the uterus after the fourth month of pregnancy we shall further notice the phenomenon, which has been well described by authors, that during the period of relaxation the fœtus (if one be there) is generally to be detected by external palpation or by external ballotment. By internal ballotment also, in consequence of the increased impressibility of the uterine wall, we can make out the fœtal presence, its contour, often its movements, and its capability of being moved. But it is interesting also to notice, during the gradual increase of solidity, how the presence of the fœtus, quite distinct before, slowly becomes more indistinct, whilst the outline of the uterus becomes more clearly marked, till instead of the fœtus we find a hard globular swelling, which we could at the time we recognised the fœtus scarcely, if at all, feel. That this phenomenon extends from the early period I have already mentioned to the time of labour, is a fact to which I have never seen but one exception during a course of observations extending over about eight years; and this apparent single exception might have been none at all had a more prolonged examination been carried out at the time. It occurred in a case of paraplegia. Although she was under my care some time, and was subjected to frequent examination, yet the uterus was never found to contract. She went out of the hospital before labour arrived, but the labour was natural.

The constancy with which these contractions of the uterus have always occurred to me leaves no doubt on my mind but that it is a natural condition of pregnancy irrespective of external irritation.

In a general way the pregnant woman is not conscious of these contractions of the uterus, but sometimes she will remark that she has a tumour in her lower abdomen, thinking it a constant thing; but another will observe that she has a swelling sometimes, but which vanishes at other times. But occasionally it happens that the uterus is more than usually sensitive, and that the contractions are accompanied by pain; and then on examination it is found that each pain she complains of is coincident with a contraction.

Again, when the uterus has been excited by any cause,

and these contractions are more than usually powerful, the woman is conscious of their presence, and by watching these we shall convince ourselves that the contractions, which were before unnoticed by her, are really the same as the so-called "pains" of premature expulsion of the fœtus, and also of true labour.

Sometimes I have found the contractions last a considerable time, longer often than the intervals; and this is more frequently the case if the uterus contain a diseased ovum, and particularly a solid or carneous mole; but in general the contraction from its commencement to final recession lasts about five minutes. The duration both of contraction and interval varies very considerably.

But it is not only in healthy pregnancy that this phenomenon exists; it is well marked, as just mentioned, where the fœtus is dead; it is also to be found where the fœtus is absent, as in the case of hydatiniform degeneration of the chorion (vesicular mole).

How far this action is the same as the peristaltic or vermicular movement observed in the lower animals one can hardly say, but one can hardly doubt a close analogy to it, if not identity with it. But when excited into a more vigorous state there can be no doubt but they are of the same character and identical with "labour pains." And this serves to explain how it is that at a short notice we can bring on labour, and how it is that the uterus shall respond in a few hours (I have seen labour artificially induced accomplished without any traction in two hours) so as to expel the fœtus at the sixth month as well as it does at the ninth month.

By our manipulation we simply exaggerate the action already going on to such an extent that the natural process exhibited by the uterus at labour at full term continues till the fœtus is expelled. In other words, we supply that stimulus which nature herself supplies at the beginning of labour at full term. The rest of the process is precisely similar. We need not, with the cognizance of this intermittent action, any longer wonder how it is that suddenly a new function is given to the uterus at the end of the ninth month; it is already in active exercise, not perceptible to

the pregnant woman, though it is to the examining hand. We also find in this frequent contraction an explanation of the change of note in the uterine souffle. Everyone conversant with the sounds of pregnancy has noticed how that, while listening to the sounds formerly called *placental*, but now acknowledged to be uterine, the loud sonorous sound has become gradually higher till it is almost a shrill piping musical one. It has puzzled many authors to explain this, but one sees no difficulty in it; the diameters of the uterine sinuses are slowly reduced by the contraction of the walls, the rapidity of the rush of the blood increased, and the pitch of the sound consequently heightened. It also explains the phenomenon of "after pains," in which we see a continuation of the same intermittent movements after the removal of the exciting cause. It is probable that the enlarged state of the cavity after labour allows the exhibition of the action, and the uterus, being more sensitive than before labour sets in, the contractions are more productive of pain than during pregnancy. As the cavity becomes smaller, and the walls relatively thicker, and as the uterus resumes its natural state of insensitiveness, the contractions are not any longer recognised unless exaggerated during suckling.

It is not impossible that a something akin to this is going on in the unimpregnated uterus; at least, we find not unfrequently that mental emotions and other exciting causes do bring on a forcing sensation in the empty womb.

In the case mentioned by Dr. Tanner, already described, and in cases where I have removed intra-uterine polypi, there is clear evidence of the contractility of the uterus in the intermittent manner, but these cases occurred upon handling and irritating the organ. That of pregnancy is spontaneous.

The only other conditions at all resembling pregnancy are those which occur from retention of the menses in utero, collections of pus, or of serum. I am sorry I have not been able to observe whether in these states the uterus spontaneously or upon irritation has the power of contracting. It would be highly desirable to obtain information upon this point. To these we shall again allude.

Let me next consider the effects or uses of these contractions. It is possible that there are others, but two appear to be tolerably clear.

In the *first* place, *it will provide for the frequent movement of the blood in the uterine sinus and decidual processes*, for as the sinuses of the uterus are so much larger than the supplying arteries, the current is more slow in them than in the ordinary systemic veins. The contraction of the walls through which the sinuses meander tends to send the current onward, and to act somewhat as a supplementary heart.

Besides this, *it facilitates the movement of the fluid in the intervillal space* of the placenta, or in that which is called the placental sinuses. Whatever view we may hold of the structure of the placenta—whether, on the one hand, there be blood amongst the villi in maternal sinuses, or, on the other, merely a serous fluid—in any case it is through one or the other medium the villi absorb the material for the aëration, &c., of the fœtal blood; and there can be no doubt that from its position it must be more or less in a stagnant state, for even if it be blood, this entering in by small openings into a much larger area, and making its exit also by small openings, must necessarily proceed at a very much slower rate, as has been pointed out by Dr. A. Fare, article "Uterus," 'Cyclopædia of Anatomy and Physiology.' It is not difficult, therefore, to recognise the effect which the change in the solidity and shape must produce on the fluids in the placenta as well as on that of the uterine walls; in other words, the contractions act as a kind of supplementary heart to the fluids in the uterine walls and the placenta.

In the *second* place, the uterine action *adapts the position of the fœtus to the form of the uterus*. There has been, as is well known, much dispute as to the cause of the head presenting so frequently in labour as it does. There can be little doubt but the more recent opinion is the correct one, namely, that the motions of the fœtus combined with the preparatory pains of labour to secure the head to present. For it has been also well shown that the head of the fœtus when folded up in utero is not really the larger end, but that the body with the limbs forms the greater portion; and as

the uterus is larger at its fundal end than below, the fœtus folded up corresponds to the shape of the uterus only when the head presents at the os.

But this explanation has been weak in one point, namely, that the head presents in all the later months of pregnancy (although not quite so regularly) long before the pains of labour have set in.

The feebleness of the explanation seems to be corrected in part, if not altogether, by the recognition of these contractions to which I am endeavouring to draw attention. During the whole of pregnancy this silent power is being exerted, so that, be there little or much liquor amnii, in other words, be the child freely floating or closely pressed by the uterus on the approach of full term labour, yet there is a time, even so early as the fifth or sixth month, when the uterine contractions must act on the fœtus in a manner similar to that in which it is supposed to act on it during the last stage of pregnancy. The remarks and quotation above given show how clearly Dr. Tyler Smith had pointed out this effect of the uterine contractions.

Let us now discuss of what value in the diagnosis of pregnancy is the intermittent action of the uterus.

In the before quoted passage Dr. Tanner says:—"But it seems that as the peristaltic motions occur whenever the uterine cavity becomes enlarged from any cause, it necessarily appears objectionable to instance such movements as a trustworthy sign of pregnancy."

To these remarks I would make this rejoinder. For the last six years and upwards I have made use of the intermittent action of the uterus as the principal symptom upon which I have depended in the diagnosis of pregnancy. I am not aware that I have been less successful than others in determining the existence of pregnancy; on the contrary, I have felt myself at an advantage in the possession of an additional sign to make up the deficiency or temporary inapplicability of the others; as, for instance, when external noise prevents the heart sounds from being heard.

But, leaving egotistical expressions, let us consider what are

the other causes of enlargement of the uterine cavity, in order that we may see how far they are practically liable to impede our diagnosis.

They are five in number:—1, retained menses; 2, hydrometra; 3, collections of pus; 4, polypus; 5, large fibroids, nearly polypoid.

We will dispose of these *seriatim;* and, first, *retained menses.*

In the first place, it would be very rare to find a case of retained menses without severe periodical monthly pains. If such a case presents itself we always examine per vaginam, and then the obstruction is detected. But it is possible that a case may present itself to us—indeed, I have met with one such—where an obstruction exists in the vagina almost insuperable to the escape of the menses from the very small opening, and yet a pregnancy occurs. Now, in this case, of course much obstacle to diagnosis must arise, because of the difficulty of exploring the lower portion of the uterus. In such an event we should, independently of the stethoscope, be enabled in almost every case to make out the presence of the fœtus within the tumour, which we should recognise as being the uterus by its power of contractility. The fœtal presence, detected by the hand and stethoscope, would point out the true state of the case. But also in almost every case of occlusion occurring in those who have already borne children, there is a history of severe labour, or some sign which would lead us at once to institute a vaginal exploration.

But supposing that a girl fell pregnant before the appearance of menstruation, of which I have known one case, then under these circumstances we should, of course, always institute an internal examination, because in any case it is necessary to make out the actual condition.

Almost always retention of menses in early life results from *vaginal* obstruction, and the majority of those after also; in these cases the uterus itself does not become distended by the secretion till the vagina above the obstruction is dilated to the utmost, and then gradually the uterus enlarges.

But this distension is not gradual as in pregnancy, but at each monthly "period" it becomes rapidly larger, subsiding to a certain degree after the "period" has subsided. The decrease in all cases is very well marked. Thus we can feel through the parietes two swellings, the upper one the smaller; and as this is so unlike the pregnant uterus, we can scarcely, with any ordinary amount of attention, mistake one for the other; even supposing, which has not yet been proved, that the uterus distended by menses contracts intermittently, as does the pregnant uterus.

2nd, *hydrometra*, and 3rd, *retention of pus* in the uterus.—Both of these conditions are very rare; both require an occlusion of the os or cervix uteri. The causes of this occlusion would be sufficiently well marked to place the probability of pregnancy aside; but, if any doubt existed, vaginal examination would show occlusion, or the state of a developed uterus as in pregnancy. And supposing that vaginal examination were unattainable, then the absence of any solid within (assuming that the uterus in these diseases presented the same phenomena as in pregnancy, which, as I said before, is still unproved), would be sufficient to distinguish these conditions. When hydrometra attains a great size, it possibly might be confused with hydrops amnii; but collections of pus in the cavity of the uterus seldom, if ever, become larger than the uterus in the fourth month of pregnancy.

Practically their infrequency during the menstrual epoch might permit us to ignore them as a source of difficulty in the diagnosis of pregnancy.

The *fourth* cause of uterine distension is polypus. In the first place, it is very rare to find a polypus in utero so large as to be confounded with pregnancy, without metrorrhagia. This latter was a very prominent symptom in Dr. Tanner's case above quoted. It would not interfere therefore with the diagnosis of normal, but of abnormal pregnancy; and principally with that form where carneous mole was present.

For if there were a pregnancy coupled for some time with hæmorrhages, if the ovum were not converted into a solid

form, the fœtus would be felt during the interval of relaxation; and it is in these cases where very frequently, the fœtus being already dead, we are deprived of the employment of the stethoscope, that the advantage of the alternate relaxation and contraction in diagnosis is well shown. Because not only does it show that the tumour is wholly uterine, but by the flaccidity we can tell that the contents are not of a solid nature, for although when the organ is fully contracted over an ordinary ovum the density is as great as if there were a fibroid or polypus within it, yet when it relaxes it is seldom that the laxity is not sufficiently complete but that we can at once satisfy ourselves that a solid of the size of the uterus is not contained within.

Again, it would be a very rare case of polypus where the uterus had by its distension grown as rapidly as it would have done in pregnancy; certainly a polypus so large as to be like a seven months' pregnancy must have taken a long time to grow, and it would be very rare that it should have been unnoticed till within that period.

In the case of a carneous mole, however, there may be some difficulty in distinguishing it from a polypus, especially in a patient seen only lately; because by physical signs they are scarcely distinguishable. By the history, however, we may generally glean information that the menses had absented themselves for a greater or less time. However, the difficulty always has been great, but it is not increased by the knowledge of the intermittent contractility of the uterus.

Taking, however, only the tactile symptom in distinguishing polypus from pregnancy, we may say that the uterus in pregnancy, when relaxed becomes quite flaccid, and that a movable solid is felt floating readily about in it, whereas with polypus, although possibly we may feel the difference between the contracted and relaxed conditions, yet it is so very slight that there is no likelihood of their being confused.

But of course we do not always tie ourselves to only one symptom; and the other symptoms of pregnancy, amenorrhœa, the size of uterus compared with the date of the absence of

menses, the state of os uteri, &c., will assist us in our diagnosis, even if the auscultatory signs be absent.

The above remarks apply to the *fifth* cause of distension of the uterine cavity, namely, to fibroid tumours of the uterus, when these project polypus-like into the cavity, except that it is highly improbable that we should find any sensible amount of contraction. In any way it would only be in the case of carneous mole that any difficulty could possibly arise; from this the long standing hæmorrhages, frequently the want of symmetry and persistent solidity, with absence of changes about the os uteri, would enable us to distinguish the fibroid tumour.

Thus it appears to me that the difficulties which would seem at first sight to be caused by the assumption that the uterus distended by diseases contracts intermittently as when distended by pregnancy, readily vanish on closer acquaintance, so far as is required in practice. The knowledge of the fact does not add to our difficulty, whilst it gives us another sign which adds materially to our ease in the diagnosis of pregnancy.

But not only are we assisted in our diagnosis of pregnancy from other uterine tumours, but still further we are helped to distinguish uterine from non-uterine enlargements.

Because if we find a tumour varying in consistence at intervals, it is clear that it must be the uterus, as far as our present information guides us.

There is only one doubt on my mind, derived from the absence of information as to whether the bladder in retention of urine possesses a perceptible intermittent action. That it contracts periodically under accumulation of urine there can be no doubt, but how far this is palpable remains yet open to observation. Of course there is no difficulty in clearing up the question between bladder and uterus, either by vaginal examination or passing the catheter; still, the absence of any solid within will clearly distinguish the vesical from the uterine tumour.

There is one form of abnormal pregnancy which, possessing a consistence between carneous mole and ordinary pregnancy,

and being without the presence of the fœtus, may be liable to give rise to difficulty—I mean the vesicular mole or hydatiniform degeneration of the chorion. In this form I have distinctly found the intermittent contractions of the uterus, yet in the state of relaxation no fœtus can be found. Of course, if we examine per vaginam we shall find a more or less patulous os uteri, history of rapid growth, with, most probably, some short suspension of the menses, succeeded by sero-sanguineous discharges. The absence of all fœtal signs, the want of complete fluidity, coupled with the intermittent contraction, will point out that a pregnancy without a fœtus exists, and will, sufficiently with the other signs, show the absence of other diseases distending the uterus.

There is also great advantage to be found in the facility with which in many cases we can obtain an approximative diagnosis. Whilst engaging the patient in conversation the abdominal examination can be carried on without arresting attention such as auscultation would do. If we found a swelling which relaxed at one time and became firm at another, this would be quite sufficient to guide us as to the advisability of insisting on a more complete examination. And then, supposing also there was amenorrhœa, the patient having been "regular" before, the general health being at the same time good, with or without sickness, we may be quite assured that we may extend the examination to a more complete degree without committing ourselves unnecessarily.

In conclusion I may add that, whilst endeavouring to point out the proper position, as a diagnostic sign, of this intermittent action of the uterus, I do not wish to underrate the value of the auscultatory signs of the fœtal presence, but rather when these, from circumstances, are unattainable or impeded, then this sign proves itself of much more value than authors have, as yet, attributed to it.

I have not added any cases to illustrate the above remarks, because, as the phenomenon is so constant and so easily recognised, and its applicability to diagnosis self-apparent, it would be unnecessarily occupying the attention of the Society to relate instances.

ON

INTERMITTENT CONTRACTIONS

OF

UTERINE FIBROMATA AND UTERUS IN PREGNANCY

IN RELATION TO DIAGNOSIS.

It may be in the recollection of some members of this Society that in 1871 I read a paper, published in our 'Transactions,' vol. xiii., describing a fact before overlooked, namely, that the uterus contracted and relaxed alternately at pretty constant intervals during the whole of pregnancy; in other words, that at intervals of about five to ten minutes the hand could distinctly recognise an increase of its firmness and then recurrence to its ordinary state—that this could be observed without difficulty when the uterus was above pubes, but also that if low down or retroverted or retroflexed it could be observed per vaginam. In this paper, as also in subsequent papers read before the Obstetric Section of the International Medical Congress, 1881, and following, I gave cases in illustration of the value as regards the diagnosis of pregnancy and other tumours complicating it, or independent of it. I also pointed out the physiological use of these contractions; the principal points of the knowledge thus afforded us I described in a paper read before the Royal Society and published in its 'Proceedings,' 1878, entitled "On the Auxiliary Forces concerned in the Circulation of the Pregnant Uterus in Woman." Before this Society I also read a paper showing that the effect of these contractions was such on the

abdominal respiratory wave (described by me in a paper read before the Medical Society, December, 1882, "On Tension of the Abdomen and its Varieties") as to nearly obliterate the curves of the tracings as shown by the gastrograph there described.

When my paper was read before the International Medical Congress in 1881, Dr. Matthews Duncan, in the discussion following, remarked that "considerable subtraction must be made from the value of this diagnostic sign, because a soft fibroma without pregnancy, itself or its capsule, or both, contracted quite as distinctly and with as much change of shape as the gravid uterus." It does not appear whether Dr. M. Duncan himself observed this change.

In a letter to the 'Lancet' shortly after, I said that this might be the case, but that I had not, up to then, met with such a one, and that I thought it must be rare, and I remarked that I thought no one else had noticed it. In rejoinder, Dr. Herman pointed out that he had, in the 'Obstetrical Journal,' 1880, published a case of fibroid tumour in which he had noticed this varying density; and Dr. John Williams in same number of 'Lancet' (Sept. 3rd, 1881) also called attention to a case he had passingly mentioned in a lecture "On the Periodical Changes which occur in Fibroid Tumours," 1880. To this I answered that, although I had not hitherto observed the change, yet I had great confidence in these gentlemen's powers of observation, that I was prepared to assent that, so far as these two cases went, this change did occur, but that further observations were required before we could accept the phenomenon to be of common occurrence. I then proceeded to show how far the power of contraction in fibroids interfered with the value of the contractions of a pregnant uterus as a means of diagnosis of pregnancy. This I will not now repeat, as I shall discuss this point later on.

It was not till about a year and a half ago that I had an opportunity of seeing a case which was parallel to the cases of Drs. Herman and Williams. It was in a lady about forty-three, of a highly nervous temperament, becoming almost maniacal at menstrual periods. She had lately increased much in the size of the abdomen, and the menses had been

for four or five months irregular, absent for two months, but too frequent the latter portion, once or twice profuse.

I found a tumour rather to right side as high as umbilicus, firm and prominent in centre. During my examination I became conscious that it had become less dense and prominent. This variation was clearly marked during a prolonged examination, and I recognised that if she were not pregnant, then it was a fibroid simply, or fibroid with pregnancy, for the feel of the mass was not that of an ordinary pregnant uterus during its relaxed condition, and, besides, there was an irregularity in its outline. I consequently made examinations from time to time, but detected no increase of size corresponding to normal pregnancy, and the menses returned nearly regularly after some time had passed. It was evident that there was no complication of pregnancy, but a fibroma of the softer kind, which still remains.

It is due to the above-named observers to corroborate their experience, and it is also due in the interest of our scientific advance that we should recognise that occasionally soft fibromata of uterus do undergo alterations in density. The bearing of this fact on our diagnosis is the next point that has to be considered.

As in pregnancy we have amenorrhœa as a most common condition, so in fibroma and its varieties there is very rarely absence of menses, but the most common condition is menorrhagia and metrorrhagia. There is, however, a difference in the relative frequency of these opposite conditions. Amenorrhœa is less frequent in fibroma than menses, menorrhagia, and metrorrhagia are in pregnancy of all kinds. If we exclude, however, the abnormal conditions of pregnancy, the infrequency of the continuation of the menses during the first half of gestation will more nearly compare, though slightly in excess, with the infrequency of the amenorrhœa in cases of fibroma.

When, therefore, we are desirous of diagnosis of tumours reaching from the size of a three and a half months' pregnancy to that of full term and even over, it is in the unusual cases of fibroma with amenorrhœa, and in the more frequent (though relatively to ordinary pregnancies much less common)

cases of pregnancy with periodical appearance of blood that we have to call in other diagnostic aids.

But in forming diagnoses by the doctrine of probabilities, in a case of enlargement of the uterus after the absence of the third menstruation, the size of the uterus being in accord with that of the uterus in normal pregnancy, the health of the woman continuing good, if we decided that she was pregnant we should be right in ninety-five per cent.

For by the end of three months the temporary checks are most commonly rectified, and the accompanying swelling of the uterus has subsided; while almost all the enlargements of the uterus other than from pregnancy are not only not coupled with amenorrhœa, but most commonly with menorrhagia and excess.

But careful consideration of the character of the uterine contractions in pregnancy and with fibromata will show how far these will assist us in forming a diagnosis.

One might say at the outset that the rate of frequency in these contractions will not help us, because in pregnancy the period of their occurrence is unequal. But in the case of fibroid I believe it is yet to be determined whether they occur spontaneously, or whether they are set in motion by the handling. In pregnancy they certainly occur irrespective of the handling; one often finds the uterus already to be firm and tense, and then to relax during the examination.

Now when the uterus relaxes in normal pregnancy, although it was impossible to feel the fœtus by palpation before, yet when the relaxation occurs the fœtus is generally to be made out not only by its movements but by "dipping" or "bobbing," as some have called it; in the same way as one feels for solid through fluid in the abdomen, or a solid in an ovarian cyst. The tips of the fingers press the parietes firmly on to the uterus and impress its walls steadily, then by a slight quick movement the fingers dip still deeper, and if a fœtus be there a momentary resistance is felt, varying according to the size of the fœtus and its mobility. If much fluid be present there the feeling is but very momentary, for the fœtus recedes as in ballotment. Now it is but rarely in normal pregnancy that the fœtus cannot be thus detected

either externally—the woman placed dorsally or laterally—or per vaginam.

This recognition of the fœtus can be obtained in many of those few cases I have before alluded to where some kind of blood discharge is met with in pregnancy, limiting thereby to that extent their relative number.

But there is generally a different feeling given to the hand in the case of a large relaxed soft tumour, and although I would not press this point too far, yet I may say that the yielding of a hollow body is different from that of the solid though elastic; in the one resistance is only just beneath the fingers, while in the other it continues to the centre.

But if we now take these large soft uterine tumours which exhibit the intermittent contractions, how very few of them will really make diagnosis difficult? In nearly all there will be a longer history of menorrhagia, of longer growth and noticeable bulk than in pregnancy, and particularly than in the abnormal kinds, *e.g.* vesicular mole and hydrops amnii; and again, in the normal pregnancy of equivalent size the presence of the fœtus will almost always be made out by palpation, if not by other signs, particularly by the development of the os uteri, which would be very different in pregnancy. Still, if the fœtus could not be felt during the relaxed state, I admit our diagnosis must be difficult judging solely by the intermittent action. But such cases are very uncommon.

In cases of vesicular mole the physical condition imitates very closely that of a soft fibroid, and as no fœtus is present the existence of contractions will not help to solve the difficulty, though of course there are other circumstances which enable us to make out the case, such as the short history, the state of os, and the extrusion of the vesicular bodies.

In the hydramnios, however, besides the also rapid history, we have sensible fluctation and, with care, the presence of the fœtus to guide us, so that the case becomes one rather of differential diagnosis in respect of ovarian tumour and other cysts, the contractions proving at once its uterine nature.

However, the cases in which the greatest difficulty of

diagnosis between fibroids and pregnancy occurs is in those abnormal conditions of pregnancy called carneous mole and early death of fœtus, with hemorrhage, because in these there is great similarity both in physical characters and also in symptoms; not that we have the intermittent contractions to help us, for often the uterus remains firm as a hard fibroid for some weeks together. Though here again the recent character of the history is unlike that of a fibroid tumour, and the case has generally commenced with an absence of one or two periods. These cases form but a small percentage of the total cases of pregnancy. The following case illustrates the difficulty which may arise very occasionally.

A lady had been suffering very severe paroxysms of pain just above pubes, many times in the day for a few weeks. She was hardly able to move at the time. She had not menstruated for four months. On examination I found the uterus enlarged to a size corresponding to the natural size of pregnancy of that duration. It was very hard and solid, the os not particularly enlarged, and the mass resembled a dense fibroid. There was no history of previous menorrhagia. There was nothing about the os to indicate closure, and I concluded she was pregnant, and the pain was owing to the normal contractions exaggerated, probably by something abnormal in the ovum. I saw her at intervals of a week four times, finding the same conditions of pain and hardness. My examinations of the abdomen were prolonged each time in hopes of getting the relaxed state, but without success, till at the end of the fourth time, just as I was giving up, the whole uterus relaxed, in other words, that which was so hard and solid so long had almost disappeared. I therefore pronounced in favour of pregnancy; and so it turned out, in due course a healthy fœtus was born. However, when the uterus keeps continually rigid, it is generally in consequence of irritation produced by some disease of ovum generally accompanied by effusion of blood into placenta.

In cases of the complication of uterine fibroma and pregnancy, it has been remarked that the difficulty of diagnosis would be increased. But this opinion has been given without reflection. The difficulty of making out this state will

always be great in the early months, but unless the uterus be more than halfway round involved in the tumours, about the fourth month one will be quite able to distinguish a difference in substantiality at least, if not to detect the fœtus, and then as the uterus contracts, so we shall notice that the more solid and relaxed portions are all included in the same mass; and this and the converse being repeated at intervals, we gain the information of the existence of fibroids and also of pregnancy; and also we are able to note the point I have already alluded to, namely, the distinction between the feel of a relaxed fibroid and that of a pregnant uterus.

In cases of differential diagnosis between two tumours, say uterine and ovarian, we can utilise the contractions (whether they occur in a uterus enlarged by tumour or pregnancy or both), recognising the one altering in firmness as uterine, the other as ovarian; the same in a uterine tumour and hydronephrosis, or in cases of extra-uterine pregnancy to distinguish the uterus from the sac.

It must be remembered that we do not apply the test of this alternate action of the uterus till we have learnt the history of the case; and before we approach the idea of pregnancy we should have excluded a good number of the cases to which I have alluded above.

And so, whilst we admit that a certain deduction has to be made when employing these contractions as absolute evidence of pregnancy, we find that they may be used in a large majority of cases, either as a distinct proof, or in corroboration of other signs, or in differential diagnosis of abdominal tumours, and I am sure it will be agreed that it is a point of much importance that we should have additions to the direct signs of pregnancy, for I have for many years taught that the secondary signs and symptoms are scarcely worth considering, in the presence of the opportunity of direct evidence derived from the examination of the uterus and its contents.

AN

INQUIRY INTO THE BEST MODE OF

DELIVERY OF THE FŒTAL HEAD

AFTER PERFORATION.

Notwithstanding that the adoption of the induction of premature labour and the employment of podalic presentation in cases of diminution of the diameter of parturient passages have much diminished the necessity for perforation, still, from one cause or another, cases will from time to time arise in the practice of every one, in which it will be imperative to open the fœtal head; and also some will occur in which, though not absolutely so, yet, from the fact of the child being dead, lessening the head will be the simplest mode of delivery. To those who are engaged largely in the practice of midwifery these cases are not infrequent; and, indeed, it will by no means rarely happen that, after perforation has been adopted, considerable, if not insuperable, difficulty will be found in extracting the head with the crotchet or craniotomy forceps.

I need, therefore, scarcely apologise for bringing before the Society the results of an inquiry into the best mode of delivering the head under these circumstances; and although, to a certain extent, I must admit I am treading on not unbroken ground, still, as the subject has not been so fully gone into as it deserves, I hope I shall be able to develop some new points which will serve to improve our practice, and which will place the operation upon a more satisfactory basis.

The question itself may be put more practically before us thus—In a given case of severe distortion of the pelvis, is it necessary to perform Cæsarean section?

This can only be answered by first disposing of the question—What is the smallest antero-posterior diameter of the pelvis through which the head can be brought by any means in our power?

Upon this a third then arises—What is the mode of reducing the measurements of the fœtal head, and of altering the relations of the now altered diameters so as to produce the least obstruction? This latter inquiry seems of late to have been much overlooked. As a scientific question, I believe there are only two authors who have reduced it to experiment, namely, Dr. Burns and Dr. Hull, the latter of whom, in his 'Defence of the Cæsarean Section,' gives an account of some experiments made by himself in order to disprove the assertion of Dr. W. Osborn (upon the celebrated case of Elizabeth Sherwood), that a fœtus could be drawn down through a pelvic brim whose conjugate diameter is an inch and a half.

The violent controversy that sprung from this assertion, headed by Drs. Hamilton and Hull, it must be acknowledged by all, was a disgrace to our profession, and it tended, no doubt, as all such violent personalities generally do, to mask the essence of the point under discussion. Thus, some valuable facts were lost sight of, and fair argument on them was prevented.

Doubtless Dr. Osborn was too hasty in his assertion that in any case he could deliver with the crotchet where the conjugate diameter was of the size above mentioned, and possibly he might not have been accurately correct in his estimate of the measurements of the pelvis of E. Sherwood, a point always open to some error in the living; but it is a curious circumstance that Dr. Hull, in his very attempts to prove Dr. Osborn false, made some very practical experiments which went very far to substantiate Dr. Osborn's assertion, and they showed that it *was* possible to get the mutilated head through a very small space when tilted *sideways*.

The state of mind in which these experiments were

undertaken, and the object for which they were designed, prevented any material advantage being gained by midwifery; the roads they opened up were not fully followed to their goal, and thus the question as to the best mode of delivery was not answered at that time, so as to be embodied in the general knowledge of the obstetric art.

The only author, besides Hull, who has gone experimentally into the subject is Burns. The rest of obstetric authors, in alluding to the use of the crotchet and craniotomy forceps, have not clearly discussed the best mode of delivering the head after perforation.

I do not mean to affirm that the use of the crotchet is not generally alluded to, and directions given to change its position on the head in case of its failing to pull it down in one way or in another; yet there has been no instruction as to the principles by which we should be guided in that traction, with reference to the altered relations of the mutilated head, except in very general terms.

Dr. Burns, however, seems to have reflected upon and put to the test of experiments the hints thrown out by Drs. Osborn and Hull. His remarks upon the point so entirely coincide with the results of my experiments that, in respect of the altering the position of the head after perforating, and after the removal of part of the calvarium in extreme cases, I cannot do better than quote them:—"But it sometimes happens that the pelvis is sometimes so small as to require the head to be broken down, and nothing be left but the base of the skull. If the child be recently dead the bones adhere pretty firmly, and in a contracted space it will require some management to bring them away. But if the parts have become somewhat putrid, or long dead, the parietal and squamous bones come easily away, and the frontal bones separate from the face and bring their obitar processes with them. We have then only the face and basis of skull left. I have carefully measured these parts, placed in different ways, and I entirely agree with Dr. Hull, a practitioner of great judgment and ability, that the smallest diameter offered is that which extends from the root of the nose to the chin.

For in my experiments, after the frontal bones were completely removed, this did not in general exceed an inch and a half. It is therefore of great advantage to convert the case into a face presentation, with the root of the nose directed to the pubis . . . . but I would conclude that whenever the pelvis, with the soft parts, measures fully an inch and three quarters—or if the head be unusually small, the child not being at the full time, an inch and a half—the crotchet may be employed, provided the lateral diameter of the aperture in the pelvis be three inches, or within a fraction of that, perhaps two and three quarter inches, if the head be very soft." "In this manner of operating, the face is drawn down first, and the back part of the occipital bone is thrown flat upon the neck, like a tippet. If we reverse this procedure, and bring the occiput first and face last, fixing the instrument in the foramen magnum, then, as we have the chin thrown down on the throat, we must have both the neck and face passing at once, or a body equal to two and three quarter inches. If, on the other hand, we fix the instrument on the petrous bone, which is certainly preferable to the foramen magnum, and bring the head sideways, we must have both that bone and the vertebræ passing at once, or a substance equal to two and a half inches in diameter; and if the head pass more obliquely, then it is evident that the size must be a little more. Although, therefore, Dr. Osborn be correct in saying that the base of the cranium turned sideways does not measure more than an inch and a half, yet we must not forget that, when the opposite side comes to pass, the neck passes with it, which increases the size."

It is a curious fact that Burns was the only author who clearly saw the true bearing of the whole subject of the dispute between Osborn and others.

Dr. Davis, who paid much attention to the improvement of the crotchet, appears to make no mention of the matter; and even in his description of the "osteotomist" he does not give any directions how to draw down, but rather directs to the total removal of, the head, by bringing it away piecemeal.

Dr. Denman, writing after Osborn, even with knowledge of his works, and being present at the case which was the text to Osborn's remarks, after advising in cases of moderate difficulty to pull down the perforated head in the original position, says (p. 172, vol. ii. 4th edit.): "In a case of very great difficulty it is, however, possible that all the bones of the cranium might be brought away successively, and nothing remain of the head but the basis of the skull with integuments. In such a case it has happened, quite unexpectedly, that I have succeeded in bringing down the remainder of the head merely by grasping the integuments firmly in a mass, or even in distinct parts, and pulling down in a proper direction. But if these should be found insufficient, the crotchet is to be introduced again, and *fixed upon the basis of the skull on any part where we can get a firm hold*, and this, assuming a more convenient direction, will be more readily brought down. *I have not found, in cases of this kind, that I have acted from a preference for fixing the instrument in this or that part or in this or that manner;* but giving myself time to reflect, the exigence of the case has dictated what I ought to do, so that I am not solicitous about any particular method. Some have thought that it was of great importance to fix the crotchet on the outside of the head, and others have insisted on the propriety and superior advantages of affixing it on the inside; *but I am persuaded that such things are of little consequence*, and that in the course of a difficult operation it may be found necessary and useful to fix it in either way."

This is very explicit, and Denman evidently repudiates any advantage from any particular manner or direction in employing traction.

Smellie (see edition of 1784, chap. 3, sect. vii. p. 219), after describing the introduction of the crotchet into the opening, as is generally advised, says: "If it does not soon answer the purpose, I introduce my finger, as above, further, and slide the point up along the outside above the under jaw, and have succeeded several times with this instrument, except when the pelvis was so narrow as to require a greater force, when we must use others." But shortly after he particularly says, in

approving the passing the tractor *outside*, "that the head never comes down in a flattened form, but the vertex is protuded in a narrow point, and the whole squeezed into a longish form." After this he says, if it does not then descend, he places a crotchet on each side of the head, and then pulls to the utmost of his strength, so that sometimes he has been scarcely able to move his fingers or arms for many hours after. Hence it appears he pulled directly down on the axis, the direction of the head relatively to the brim being unchanged.

Merriman ('Synopsis of Cases of Difficult Parturition') says nothing beyond alluding to the fact that Dr. Osborn has investigated into the best method of procedure in cases of distorted pelvis.

Dr. Churchill ('Midwifery,' 1860, p. 369) alludes to Dr. Osborn's investigations, and, after quoting the opinion of various authors as to diameter of the pelvis through which it is possible to draw a child, says, "I would not venture to have recourse to craniotomy unless the antero-posterior diameter was fully two inches." He, however, does not mention the mode Osborn adopted and recommended, which is an essential point of his argument, and dwelt on by him particularly. He says: "In some cases the distortion of the pelvis is too considerable to admit the passage of the head even when emptied of its contents, or the obstruction may result from the ossification of the bones of the skull; in either case an extension of the operation is necessary to complete the delivery. This may be effected by breaking up the cranium with a small pair of forceps, resembling Dr. Davis's, or by the cephalotribe."

Dr. Ramsbotham ('Obst. Med. and Surgery') gives no special direction as to the part of the fœtal skull to which the crotchet is applied, either externally or internally, nor makes any mention as to the altering the position of the mutilated skull during the traction. In one part he says, "the small blunt hook may be fixed in the foramen magnum or behind an orbit" (op. cit., 306).

Dr. Bland ('Observations on Human and Comparative Anatomy,' pp. 213–223), in reviewing Dr. Osborn's work on the case of E. Sherwood, after alluding to the incompressibility of the base of the skull, says, "This the author (Dr. Osborn) seems to be aware of, and therefore says that by removing the parietal bones we shall be enabled the easier to reach the basis of the skull and turn it edgeways, and thus with greater facility to bring it through the contracted strait of the pelvis." But he denies that Osborn did this intentionally, but that it was the result of employing only one instrument in drawing the head down. After discussing the best mode of applying the crotchet, whether inside or out, he recommends it to be applied externally, against the advice of Osborn, and continues, "Besides, he seems to think that it is only by fixing the crotchet withinside the head that we shall be enabled with it to turn the basis of the skull and bring it down edgeways." Again: "I have generally thought it proper to leave it to the discretion of the operator to apply the hook or crotchet within or on the outside of the skull, wherever he could get the firmest hold; but in this it seems I have been mistaken, and Dr. Denman has incurred the censure of our author for maintaining a similar doctrine." Hence it is evident he was fully aware of the bringing the skull aslant, but has no particular preference on the matter, and rather stiffly criticises Osborn's having one.

Dr. Murphy ('Lectures on Parturition') quotes Dr. Osborn's case rather fully, "because it accurately describes an operation with the crotchet different from what we have described —one by which the vault of the cranium is quite broken up and removed, and the base of the skull is drawn obliquely through the contracted brim of the pelvis, the crotchet being fixed in the foramen magnum." Beyond this I find no allusion to the position where it is best to place the crotchet, nor to the subject of the present paper.

Dr. Hamilton ('Letters to Dr. Osborn') thinks it a very difficult thing to deliver the head as Osborn stated he had done. In detailing an experiment with the drawing of a dead fœtus and an artificial pelvis, he makes the following

remarks:—"Let the cranium be broken down as much as can be done in real practice, and then, by means of a crotchet *fixed in the foramen magnum*, let it be tried whether it be possible to extract it." Again, in another place, he remarks, when the base of the skull is turned *sideways*, "the neck must add somewhat to the volume of the head." Thus, he was only considering the mode recommended by Osborn, namely, fixing the head in the foramen magnum and tilting it *sideways*.

In the commencement of this paper I alluded to Dr. Hull; I shall now notice the experiments he made in the mode of delivering by embryotomy. In defending Cæsarean section from the conclusions of Dr. Osborn, who considered that his case of Elizabeth Sherwood had shown that the crotchet was equal to delivery under any circumstances, he made a series of experiments to prove Dr. Osborn's statements incorrect. He made in several boards, an inch thick, a series of apertures of the form and size of the brim of several very deformed pelves, whose measurements are given by him. Three of these were produced by malacosteum, three by rickets. Among the latter the pelvis of Elizabeth Sherwood, after the size of Dr. Osborn himself.

He then produced a fœtus of moderate size, from which he removed the parietal and frontal bones down to the base of the cranium, and bent the occipital bone a little behind the foramen mangum, so that it would either lie back on the neck or forwards upon the base of the cranium. Thus reduced, it measured from chin to the top of nose, at its smallest, an inch and a half, and nearly a quarter inch more from chin to top of orbits; from the external canthus of one orbit to that of the other two and a quarter inches; the same from one zygomatic arch to the other; from the top of the nose to the posterior part of the condyles of the occipital bone three and a quarter inches. He then remarks: "When these different dimensions are attentively considered it will appear to every one that the most favourable position in which the head so reduced can be applied to a small aperture, with a view of dragging it through with a crotchet, is *endwise*, with the chin to the sacrum or to the os pubis; not occiput

foremost, because in this case the volume of the face must be added to that of the neck; nor sideways, as Osborn states he placed it in the case of Elizabeth Sherwood."

These remarks are very important, and I believe, with the exception of Dr. Burns, no other English author has so clearly pointed out this fact, although, doubtless, it must have struck many minds before and since, the point being palpable on the slightest consideration.

He then with the crotchet endeavoured to draw this mutilated head through these apertures, trying sideways and then endways; the crotchet sometimes fixed in the foramen magnum or in the sella turcica; sometimes with the chin to pubis, sometimes to sacrum. But in all these trials he found it impossible to draw it through *sideways*, and with only great force endways in some instances, and in one or two without much difficulty; and concludes that it would not be possible to draw a child through a pelvis having the diameter of Elizabeth Sherwood's, as stated by Dr. Osborn, without inevitably destroying the woman; that it is not always practicable to extract a child by crotchet through a pelvis having that space from pubis to sacrum, or from the fore to the hind part of the superior aperture. He then proceeds to discuss the mode of applying the crotchet, disputing the policy of the plan recommended by Dr. Osborn, namely, on the inside of the head. He says, "But if we apply the crotchet on the outside, especially under the lower jaw, we shall find it more easy to obtain a firm purchase, and to turn the head edgeways or more or less endways."

He afterwards gives some rules, or rather indications, of treatment in difficult cases. Those which belong to our subject are the following:—"Supposing the pelvis affected with rickets measures less than two and a half inches and more than one and eleven-twelfths from pubis to sacrum, a fœtus of average size may be brought through by the perforator and crotchet; and it may be extracted by them even when the same diameter is less than the above, provided there be a space on one side equal to two inches from before to behind, and a little more than three and a half inches long. Supposing the pelvis distorted by malacosteum measures one and three

quarter inch from before to behind on each side opposite the acetabulum, a moderate-size fœtus may generally be extracted by embryulcia, as the diameter taken from the symphysis pubis to the os sacrum is always considerably greater in these cases, and the pelvis sometimes yields a little to the head as it passes. The practicability of delivery will, however, depend in a great measure upon the depth of the tube of pelvis, especially anteriorly." After directing in the larger pelves to wait after perforating, he continues: "But if the directions given above should not be sufficient, we should break the bones composing the upper part of the cranium, by repeated application of the crotchet; and we should loosen them from the scalp, and extract them carefully with the fingers or a pair of forceps, to avoid injuring the vagina and other soft parts. When the deformity is very great it will be necessary to apply the crotchet on the outside of the cranium, in order to give the base of it a more favourable direction by turning it edgewise or more or less endwise."

These important observations and experiments have not, it appears to me, had their full weight upon practice. Possibly they have not been so completely gone into as they deserve.

Dr. Simpson, in entering upon the same subject, says ('Obstetric Memoirs,' 1855, vol. i. p. 622), after alluding to the error of changing position by the use of the crotchet, and increased difficulty thereby in cases of common embryotomy, says: "We are perfectly aware that when the pelvis is much contracted we are obliged, as has been well pointed out by Dr. Hull, to alter in various ways the presentation of the head, always, however, bringing it into such positions that its diameters are in each case those requiring the least possible space."

Foot-note to same. — "When the crotchet is fixed upon the posterior part of the parietal or upon the occipital region, the infant's head can be brought down through an inch or so less in diameter than when the crotchet is fixed upon the frontal region. In fact, when the crotchet is fixed upon the forehead it brings the head down in an increased diameter, required by an ordinary forehead presentation."

This, of course, applies to ordinary perforations. But is this really the case? And if it is so, to what extent is it so? Where is the division between an ordinary case of perforation and one in a much contracted pelvis? What is the rule for those cases which are between these extremes? It is highly important that we should know something of these points, in order that we may have some sort of principle by which to employ our traction, and some knowledge of the extent to which cephalotomy is required.

It is these questions whose answer is attempted in this paper.

And, first, it must be understood that, unless expressly stated to the contrary, the head is in the position termed "at the brim," with the base at least still above the brim. It will, it appears to me, be the clearer plan to consider first the best mode of delivering the head after perforation in severe distortions, and then to pass to the notice of the less important obstructions.

If the whole calvarium of a full-term fœtus be removed, so that only the base of the skull be left, it will be readily perceived that the relation of the diameters is altogether altered, as I have before shown was illustrated by Drs. Hull and Burns. This is so self-evident that it were almost a needless task to enter further into the subject had it received that full attention it deserves.

The diameters of the head, in opposition to the conjugate, are nearly the same as before the biparietal was destroyed, the bizygomatic taking its place if the head be still pulled down in somewhat the same direction as that in which it presented originally; it will therefore be seen that but a slight advantage will be gained by this removal. The difference of half an inch is the very outside of the gain. This, of course, in slight obstructions, is sufficient for delivery, but of these I am not now speaking, because simple perforation will also give the same amount of reduction.

If, then, traction were continued by the crotchet attached to the neighbourhood of the centre of the base inside, nearly the same difficulty continues as before perforation. But by removing the calvarium we completely destroy the vertical

diameters of the fœtal head, and thus annihilate the disadvantage of face presentation. What remains of the vertical diameter never exceeds an inch an a half in the largest child, but on the average is about one inch only. That is to say, the distance from the alveolar ridge of the upper jaw to the root of the nose or the supra-orbital ridge is of never more than these measurements. In this I do not reckon the lower jaw, because it never need be considered as a serious, or even any, obstacle; it either opens, thereby passing out of consideration, or it can be readily broken by moderate traction.

Let, then, a skull so reduced be made to present at the brim, with the face downwards, as in face presentation. It will be seen that the longitudinal diameter of the head, normally opposed to the transverse or oblique of the pelvis, now is coincident with the axis of the pelvis. The transverse of the head is now opposed to the transverse or oblique of the pelvis; and the vertical diameters of the head, now reduced to between one and one and a half inch, is opposed to the antero-posterior or conjugate of the pelvis.

Now, as it is very seldom that the transverse diameter or its representative is so much reduced in distortions of the pelvis as to fall below the diameter of the bizygomatic, namely, from three to three and a half inches—say, in the largest clothed skull, four inches—it is evident that with this space laterally, and the conjugate of over one and a half clear diameter in the clothed pelvis, could we succeed in fairly adapting them, we should be able to draw an average-sized head through.

Of course, in the irregular distortions of the pelvis the difficulty of adaptation is great, and it will now and then happen that, although the antero-posterior diameter may be over two inches, its working diameter may be much less, or the lateral portions of the brim may pass backwards so sharply as to exceed the curve of the base of the skull. These conditions may cause an insuperable obstacle to the passage of the head in any way, and particularly if the outlet and cavity be also deformed. These are the extreme cases, and they must be carefully examined before delivery is attempted

under the guidance of the principle for reducing the head as here laid down. Dr. Hull has carefully examined this point in the work above quoted, to which the reader will do well to refer. It is in the more common form, namely, reniform or ovate pelvis, that we find less difficulty in adapting the remains of the head to the distorted brim.

This adaptability will be still more complete when, with a face presentation, we cause the inside of the base to present backwards, so that the promontory of the sacrum can project into the hollow of the base, while the curve of the lateral portions of the base will naturally correspond to the curve of the distorted brim, which, it will be remembered, is always directed backwards in those whose antero-posterior diameter is shortened either by rachitis or mollities ossium. In this case the chin will be forwards in the normal position, as in ordinary face presentations.

In the accompanying drawing is shown, of the natural size, the outline of the brim of the pelvis given by Dr. Swayne in last year's volume of the 'Transactions,' in which he performed Cæsarean section. In it is placed the head, face forwards, of an oversized fœtus, which weighed ten pounds, whose calvarium has been removed, also drawn of the natural size. This head was made to descend without much difficulty through it. Of course it will be understood that, the soft parts being absent, this result cannot be taken as a guide as to the possibility of delivering the child by craniotomy in this case. A rather small full-term fœtal head treated in the same way readily passed through this dry brim. This pelvis measured one and six-tenths inch in its longest antero-posterior diameter. The other measurements are given in the drawing.

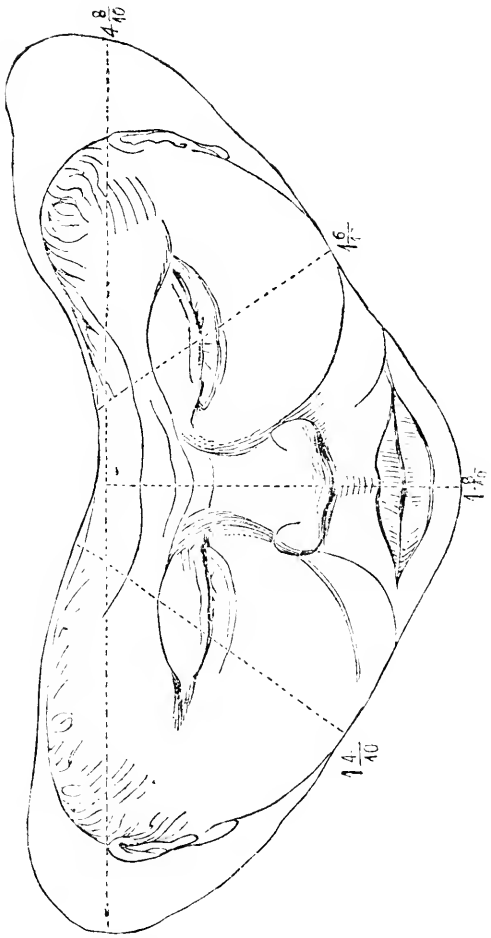
But if, instead of inducing face presentation, we cause the head to present to the brim by the side, drawing it down sideways, as recommended by Osborn and others, it is not difficult to perceive that the neck would to a certain extent be added to the depth of the base in causing an obstacle to the passage; besides which the transverse or oblique of pelvis is still opposed to the longitudinal diameter of the head, instead of the bizygomatic, as in the face presentation instanced above.

Supposing, again, the occiput be drawn down first instead of the face, the diameters of the head as opposed to the pelvis are the same as in the face presentation above described; but it will be readily perceived that the neck adds considerably to the vertical diameter as soon as the posterior half of the base is drawn through the brim. Therefore we have the difference between neck and occipital bone as when face presents, and neck and facial bones with the lower jaw as when the occiput is drawn down, equal, at least, to an inch.

Thus it will be perceived that after the calvarium has been removed the easiest position for the head to descend is by the face presenting downwards, the chin pointing forwards. This I wish particularly to dwell upon, because it has almost entirely been overlooked by obstetric authors in England, and, as far as I am aware, abroad also. I believe Dr. Burns is the only one who has clearly seen and described this point as I have above quoted.

Assuming that these points will be received as sufficiently proved, let us now turn our attention to those cases where perforation is required under the *slightest* amount of obstruction which may necessitate its employment. In the lesser obstructions requiring it, it is plain to all that the mere lessening the contents of the head will permit such a diminution of the diameters as will allow the head to pass by the assistance of the natural efforts or by very slight traction. In this case, of course, we do not require to do more than pull the head down in the original direction. This point also, I consider, will be admitted by all.

It seems, therefore, to follow that, if in considerable contractions of the pelvis the induction of face presentation, after the removal of the calvarium, is the best plan of delivering the head; and yet in the minor diminutions the original position, that is, the continuation of the vertex presentation, is the best; there will, of necessity, be states of pelves where the advantages of the two plans would be equal. In other words, we may put it as an inquiry—In what amount of pelvic contraction can we best induce face presentation, and in what continue traction by pulling at the occiput?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This will be answered by ascertaining the reduction of the various diameters of the fœtal head produced by varying the degree of the evacuation of the brain, and afterwards removal of different quantities of the bones of the calvarium.

It will be well to remember that after lingering labour with vertex presentation, the head having entered half way into the brim, there has been a not inconsiderable diminution of the fronto-occipital diameter as well as of the lateral, so that, could the presentation be converted into a face, a great portion of the obstacle to this latter presentation would be removed. The appearances of the fœtal head after both these presentations readily show this point, the chief difference being that after face presentation the vertical depression is the more complete, the elongation taking place more towards the occiput than in the lingering vertex labours. However, the elongation, and that in a backward direction, of the mento-bregmatic diameter, by these means would interfere somewhat with the facility of the conversion, presenting, by its projection against the right or left side of the promontory of the sacrum or other portions of the brim, an obstacle requiring some force to overcome. Again, supposing we perforate and evacuate some of the brain, we shall still further reduce the fronto-occipital diameter, in addition to that produced by the compressive action of the pains, and, therefore, to a certain extent, neutralize the comparative advantage of changing the direction of the presentation.

Another point has also to be considered, namely, this, that with face presentation at the brim, even with a certain amount of reduction of the size of the cranium, the bizygomatic diameter of the fœtal head is still opposed to the conjugate of the brim, much the same as in ordinary vertex presentation; while the fronto-mental corresponds with the oblique of brim, in obedience to the mechanical law that the smallest diameters of the head will be opposed to the smallest of the brim, and the longest to the longest; as long, therefore, as the bizygomatic is smallest it will oppose the antero-posterior of brim, so that it follows that till the reduction of the size of the cranium is carried to a point below the bizygomatic diameter there will be no material advantage gained by altering the

vertex presentation into that of face. If we calculate the average of the clothed bizygomatic of a full-term fœtus at the lowest to be three and two-eighths of an inch, then down to that point there will be no particular advantage in changing the vertex presentation into face, excepting this, that if the bones easily separate we have a better hold on the outside of the skull, with less liability to bring away the bones. It is when the antero-posterior diameter of the pelvis falls below that of the bizygomatic that the advantage of induction of face presentation begins to be apparent, but, of course, only by the removal or fracture of more or less of the bones of the calvarium, proportionately to the decrease in the conjugate.

In order to ascertain the amount of reduction of the diameter of the fœtal head under varying degrees of perforation, evacuation, and breaking up of the calvarium, I have made experiments, comparing these diameters which oppose under the different presentations.

The details of these examinations I have placed in a somewhat tabular form, but the results all lead to the same conclusion, which I may briefly sum up in these words:— After perforation, and up to the evacuation of about one quarter of the brain, the occipito-frontal diameter is smaller than the mento-bregmatic; but after this point the mento-bregmatic diminishes in direct proportion as we evacuate the brain, reduce the rigidity of the calvarium, or remove it altogether.

In other words, when a quarter of the brain has been evacuated, and the bones of the vertex somewhat softened by the aperture made by the perforator, the mento-bregmatic and the occipito-frontal cause equal resistance, but that the continuation of the evacuation and removal of the bones renders proportionately the mento-bregmatic the less. Thus, the induction of face presentation, after this point has been reached, will be the most easy way of delivering the head, provided the obstacle cannot be overcome by traction on the occipital bone, and provided the conjugate be less than the bizygomatic, as I before mentioned.

These experiments have been made upon fourteen full-term children, many of whose heads were larger than the average.

From the analysis of the results of these experiments the case may, perhaps, be stated even stronger, for it will be seen that although, as all are well aware, the vertex presentation is better than the facial when the head is in the natural state (although not so much always from its less diameter as from its greater facility for compression), yet that directly after the opening of the skull, and evacuation of as much of its contents as takes place in the simple forms of perforation, the vertical diameter, or mento-bregmatic, receives a reduction in a greater ratio than that one which engages the brim in ordinary vertex presentations, namely, the fronto-occipital. Indeed, even in this stage in many instances the former was actually rendered *materially* less than the latter, so that at any rate the conclusion above arrived at may be accepted as rather within the truth than beyond it.

To militate against this advantage there is the less compressibility of the head in face presentations, also the obstacle above alluded to from the elongation of the head into the cavity of the pelvis.

It will, however, readily be seen, from the nature of the case as well as from the experiments, that upon removing a part of the calvarium these two objections cease entirely, while at the same time all the advantages which I have pointed out to be gained by face presentation after total removal of the bones rapidly come into play.

I have in these remarks treated the head at the brim as if the plane of the fronto-occipital diameter were parallel to that of the brim (a point which has many supporters), because in this case it makes no difference; any obliquity which does or may occur does not influence the principles here laid down, acting equally in all.

I have not alluded to the obliquity the above-named diameters of the head may assume during its progress through the brim, because, as this takes place by mechanical force, the movement is sure to occur in those directions which give the least opposition to the passage, and any obliquity which occurs acts equally to the advantage of both.

Of course, in the more complete mutilations of the head, and in the severe and irregular distortions of the pelvis, such

as those produced by malacosteum, the head will have to be brought through in a less regular manner than obtains in ordinary simple perforation, but then this also has equal effect on both sides of the question; all our traction must, however irregular, be guided by some principle or another, and it seems to me a great advantage to know for certain the position of the head, which of necessity offers the least obstacle to a deformed brim; the advantages to be gained by altering slightly, by swaying or other procedure, the head in its newly induced position will be readily recognised by those at all conversant with the operation, and which will be developed in the progress of the case almost as a matter of course. This may be well observed if we watch the descent of the head reduced as above indicated whilst drawn through an unclothed pelvis. It will, unguided, in the majority of cases, follow in the direction most free from opposition. Should any check take place it will be then overcome by varying slightly the direction of the traction.

These remarks are, indeed, but truisms; yet in all their bearings they are not so fully considered as they ought to be, neither by authors nor by most of us. Perhaps a good illustration of this may be frequently found in the records of severe craniotomy cases, where it is stated that, after long-continued efforts to draw down the head by the crotchet in every direction, it was at last accomplished by hooking the instrument into the orbit, superior maxilla, or zygoma.

In urging, however, the advantage of face presentation after a certain degree of collapse of the skull, I may be permitted again to mention that it is clearly to be observed that there is much difference in the opposing diameters, whether the chin descend anteriorly or posteriorly, and this holds peculiarly strong in considerable contractions of the pelvis. A glance at any pelvis whose sacrum has fallen forwards will show that there is a general tendency to a quarter-moon form, the concave aspect being forward; and this may be said to be more or less present in the working spaces of even the most distorted brim of this class. A slight consideration also in reference to the form of the base of the fœtal skull without the calvarium points out a similarity, at least in its

internal aspect, and consequent adaptability to the projecting sacrum.

Hence, it makes some difference in these cases of severe distortion whether we make these curves coincident or opposing, and particularly in the Y-shaped or *beaked* pelvis. It is not difficult to see that if we do not attend to this point we may lose the advantage in some cases of three-quarters of an inch to one inch.

I directed my attention during the experiments with a view to ascertain how best to secure this result, and I was pleased to find that there was a great tendency in the mutilated head during traction to assume, by the mechanical forces, a position which gradually brought about this desired coincidence; besides which it was found always quite possible and easy at the commencement of drawing down to change intentionally the position of the child from the posterior-oblique aspect to that of the anterior-oblique; when so much has been accomplished, if we draw down the face, the chin readily glides forward and assumes the position as in ordinary face presentations. It is only the first quarter turn which is required, and the rest follows naturally, and this quarter turn is best made at the very commencement of traction. Of course, I assume that by this time the exact position of the head has been ascertained, which is easily done by an examination of the base, even if not discovered previously. And the observations from these experiments have been corroborated by actual practice, for I have not hitherto found any difficulty in inducing the chin to take a forward direction.

To place the whole of these observations in a concise form, it may be said as follows:—That although, as has been always acknowledged, the vertex presentation in natural labour is the best, and that after perforation and the evacuation of the brain up to the extent of one fourth this rule holds good; yet if the evacuation of the brain and collapse of the calvarium by this means, or by more or less fracturing the bones, be carried to a greater degree, that is, in cases where the conjugate diameter is less than the bizygomatic, we find that the facial presentation affords the easiest mode of delivery; and, further, that if we remove the whole calvarium,

leaving merely the base, and then induce face presentation, taking care that the chin as it descends point anteriorly, we diminish to the smallest possible amount the opposition of the head, leaving only from one to one and a half inch in depth to oppose the conjugate diameter of the pelvis, and three to three and a half, at the most four, inches to the transverse or its representative. When I say "to the smallest possible amount," I mean except we remove the whole of the base piecemeal.

It now remains to consider what practical inferences we can draw from these facts, and in what manner we can best apply them; afterwards to give some illustrations of their application to practice.

The first inference which I would mention is that, when the pelvis was only moderately contracted in its antero-posterior diameter, and it was found that after the simple operation of perforation due traction made by the ordinary means failed, it would be better to remove a portion of the calvarium purposely, if this had not been already done by the efforts of pulling; or to fracture the bones of the calvarium; or both combined, and then to induce face presentation. The extent of fracture and removal of the bones must depend upon the deformity of the pelvis; but I am sure it would be better to make it too complete than the contrary, for whereas this portion of the operation is but simple, and with ordinary care against laceration attended with but little risk, the same cannot be said of the tearing away portions of bone during the continued endeavours to pull down the head in the manner generally done. The former is done methodically, with only moderate force, whilst the latter is produced by an uncertain quantity. The best plan to effect this object is to pass the outer blade of the craniotomy forceps between the scalp and the bone, instead of outside the scalp. By this means the bone is more readily torn away, being also protected by the scalp completely till the hand can guard it from lacerating. Let portion after portion be thus removed, and then, before the face presentation is induced, the loose portion of scalp is to be carefully folded over all the edges and passed inside the opening of the bones. It is generally the

best plan to fracture the bones first by a sudden twist of the hand, as suggested by Dr. Simpson.

The second inference we may make is the extension of this action to those cases where the distortion is severe. Where the conjugate diameter is reduced below two and three quarter inches, the fœtus being at full term, then the best plan is to carefully and intentionally remove the whole, or nearly so, of the calvarium, as just above described, carefully preserving the scalp as a covering for the edges of the bones, after which the face is to be made to present. The chin should be drawn anteriorly if it be not already in this position. As in the partial removal of the calvarium, so also in the complete, it is best to do it in the manner above mentioned.

It may be here incidentally remarked that in all cases of perforation, where it can be easily done, it is of great advantage to pass the hand altogether within the vagina, both when perforating and also when removing the portions of bone. As a rule, it will be found very practicable, as those cases are comparatively rare where, except in mollities ossium, the outlet and cavity will not permit the hand to pass; and it gives great comfort to the operator's mind, inasmuch as he can regulate his movements with precision; and much security to the patient, as the soft parts can be guarded with a certainty, impossible with the fingers as usually employed.

If the bones be difficult to fracture or remove, then Dr. Simpson's cutting craniotomy forceps may be employed with benefit; but it is very necessary to be particularly careful that the sharp edges of the cut bone be not without protection.

It is advisable to leave the orbital ridge, in order to give facilities for producing face presentation and to give a firm part upon which to pull; and the occipital bone should be well looked to, in order to remove any spicula projecting from it, even although guarded by the scalp. If it be difficult to remove all, or if the pelvis be not much deformed, then it might be permitted to double the upper parts over into the interior of the base, so as to be out of the way.

The mode by which face presentation is induced is by no means difficult, and the readiest plan, I believe, will be found

to be by means of the crotchet or, which I much prefer, at least at the commencement of the operation, by a small blunt hook. The one I use is of the following size:—The diameter of the iron rod from which it is made is about a quarter of an inch, of the length of the ordinary blunt hook, with handle also alike. The hook is a half circle about one inch in diameter, and is made hard to prevent its opening during traction; the shaft is made of soft iron, and can be bent by the hand into any form, being thus adaptable to any situation. I may mention here that this hook is useful in other cases in a variety of ways, where it is impossible to employ the unwieldly blunt hook in general use.

The advantage of this hook over the wide awkward crotchet for the passage outside the head is immediately apparent when we consider that by passing it flatwise it cannot possibly do harm in even unaccustomed hands, which cannot be said of the crotchet in such a position; and when it is understood that we have not to fix the hook into the skull, but into the natural ledges against which we pull, namely, the orbit, zygoma, upper and inferior maxillæ; and, further, when we see that it can be so readily dislodged from these attachments, a movement by no means easy in the crotchet, even should it not have penetrated the bones.

If this small hook be passed flatwise along the exterior of the head anteriorly, and when it has reached the probable position of the orbit, then the point can be turned towards the head, and afterwards, by gently feeling, it can be easily ascertained if it has lost hold of the supra-orbital ridge. If it has a firm hold, we may at once conclude that it has reached this point; if the hold be not firm, we have probably found the zygoma. We may draw upon this latter point because I have found that traction on this point will also cause the face to come downwards ultimately, at least so as to shortly reach also the orbit. However, it will always be best to ascertain the actual position of the face, and then to pass the hook in that direction, and the orbit will be certainly and readily found. If we do not at once hit off the orbit we must feel gently with the hook in the neighbourhood; but, as far as my own experience is a guide, there is very little difficulty

in the matter. One thing prevents much mistake, which is that we cannot with the hook bring down the occiput, it will glide off it, while the anterior part of the head, which we wish to bring down, has numerous points of attachment. And here, again, the advantage of the small blunt hook will be seen, that, whereas the crotchet would seize any inequality and thus deceive us, the other would only retain hold upon the desirable parts. I generally, in the less complete reduction of the fœtal head, bend the shank of the hook so as to facilitate its adaptation to the curve of the head's surface, in the same form as the shank of the crotchet.

When, then, the hook has taken hold of the orbit, we must gently draw it down, securing as before mentioned the gliding the chin anteriorly should it not have already done so. After the face has been caused to present nearly downwards, the hook, from the position of the orbit, ceases to hold, and may glide off; it is then to be passed into the mouth or under the under jaw. I prefer the former, but should it slip from this then it can be readily carried under the under jaw. Should there still be difficulty of retaining firm hold now, the crotchet should be employed, for the objection to its use before noticed has by this stage ceased; the point can be pressed into the hard palate, and thus a secure attachment made, and even the blunt hook can be made to assist at the same time, and thus a steady traction can be employed with the face thoroughly presenting.

By these means, and by such modifications of it to varying conditions as any practitioner used to perforation will readily judge judicious, the induction of face presentation will be found not at all difficult, and, once accomplished, it will be seen to be productive of the best results. The descent of the head, before impossible, now takes place with much celerity; nothing is more surprising than the rapid advantage gained, as has been witnessed by me in several cases.

In these cases, as above shown, there is no necessity for taking the impediment the lower jaw will give into account, for when traction is made on the upper the lower jaw is depressed, and thus the mouth is so opened that it ceases to impede.

Should this, from unusual circumstances, be not the result, the jaw can without much difficulty be broken, and thus also it will give no resistance. This should be avoided, if possible, inasmuch as in all these operations any unnecessary chances of laceration should, of course, be carefully guarded against. The depth from upper alveolar ridge to root of nose or frontal sinus is seldom more than one and a half inch, generally about one inch; the same measurements will also represent the depth of the rest of the base till the anterior half has passed. The resisting portions are then composed of the neck and posterior half of the base; this is about the same as the former in effective resistance, perhaps rather less, for the neck is not quite a compensation for the facial bones.

It should be here remarked that when the conjugate diameter is decidedly small, and we have begun to remove the bones, we must not be tempted, in order to gain time, to induce face presentation till we have accomplished what we had at first intended, otherwise it may prove not so complete as the case requires, and it will be difficult to reach the occipital bone again, or at least it will cause unnecessary trouble and distress. The removal of every portion of the calvarium is not absolutely required in the cases where the conjugate diameter is about two and four-eighths inches; below that measurement it will be proper to remove all.

The rules for guarding the maternal soft parts during every stage of the operation are the same, and as requisite as in ordinary craniotomy, of which, indeed, the plan above indicated can scarcely be called a modification, being rather the substitution of a definite plan of management for an indefinite one. But to one point here it will be well to call attention, namely, that in the employment of traction on the outside of head the point of the instrument is always directed away from the maternal soft parts, and the danger of laceration from the instruments much reduced.

How far the use of the cephalotribe in vertex presentations may be superseded by this manner of delivering the head after perforation, I am not in a position to say. From the results of my own experience, my impression is that, as far as brim obstructions are concerned (and it is with these only

I have here dealt) we shall be able thereby to accomplish as much as, and a great deal more than, can be done by this instrument. Comparing the relative risks of lacerating the maternal soft parts by either, one would think that there was not much difference. Carefully done, the removal of the fragments of bones need seldom cause injury; about the same may be said of the extrusion of angles of bone during the crushing of the cephalotribe, because they would in most cases be covered by scalp; without this protection the latter instrument would be more likely to injure, because it would occur without our knowledge.

Comparing the ease of application, it is clear that the small blunt hook can be passed in spaces impassable to the cephalotribe.

In the severe contractions of the conjugate diameter delivery of the head by the plan above recommended is more practicable than by crushing. No amount of compression can so effectually reduce its diameter as the removal of the calvarium. Indeed, there is little doubt but that it brings us to the boundaries which divide embryotomy from Cæsarean section.

By it we can reduce the head to such small dimensions that it will pass more readily than the remainder of the body. In one of the cases hereafter given I found even the fœtal pelvis cause much more trouble to draw through the brim than the fœtal head.

And thus Dr. Osborn, although he asserted strongly upon only one case, was not so very wide of the truth as his contemporaries would have us believe when he asserted that, given a conjugate diameter of one and a half inch, he could bring a child through. That there were other elements to be considered before he could with safety assert that thereby Cæsarean section could be done away with was well pointed out by his critics; but doubtless he saw so clearly the advantages that the tilting of the base of skull purposely (although he did not tilt it in the best manner) gave the practitioner, that the gist of the question whether the fœtus could be brought through the natural passages in extreme cases, did not then apply to the head.

Be this as it may, I feel that with craniotomy, conducted on the principles herein indicated, the consideration as to the performance of Cæsarean section is to be influenced rather by the size of the body, and particularly of the pelvis, than by the size of the head.

This brings us, as above observed, to the plan recommended by the late Dr. Davis in extreme cases, namely, of removing the child piecemeal by the instrument he invented—the osteotomist. However, it is not intended here to enter on this part of the discussion; but this much, I think, may be said in reference to delivery by natural passages or by Cæsarean section, that in extreme cases, with the fœtus alive, we should carefully weigh the respective dangers; but if the fœtus be already dead, and particularly if decomposition be commencing or already established, whereby the peritoneum will be exposed to most irritating matters, then, the risk of Cæsarean section being extreme, we should proceed to reduce the bulk of the fœtus by these other measures, if they be by any means practicable.

In the above remarks I have purposely avoided discussing the plan of turning after perforation, which is valuable in certain cases, confining myself to cases of vertex presentation, where we have no option but to deliver the head as it originally presented at the brim. However, here we must be guided by the foregoing principles; and should the head remain fast after version, *the occiput* should be drawn down first, in preference to the face.

It might be said that in using the crotchet inside, or the craniotomy forceps, in every case of craniotomy, we do virtually tilt the skull when these are employed in front or on side of head. To a certain extent this is true, but hitherto the directions have generally been to apply them to the posterior rather than to the anterior, or to any part indefinitely. In some works the crotchet is directed to be applied to the sella turcica or foramen magnum, than which nothing can more show the want of appreciation of the whole question. The difference between the application of the tractor to the inside of the skull and when applied to the orbit or upper jaw is, that the latter is definite and complete, and in

severe contractions of the conjugate diameter this makes the difference between the possibility and impossibility of delivery. This imperfection of alteration rather tends to increase the opposing diameters produced by the head than to decrease them in the extreme cases; it is, however, of less importance in the minor contractions.

There is one more practical hint which may be derived from the above considerations, namely, that the plan of waiting for collapse of the bones need not be employed. When once we have determined to perforate, it will be best to proceed at once to its final result. The putridity of the child adds much to the risks of the mother, especially if abrasions or lacerations should occur. These remarks, perhaps, are scarcely needed in the present day, but I think they cannot be too well remembered.

It must not be understood that in the above remarks it is intended to be stated that the passing of a hook outside has never been employed as a means of delivering the fœtal skull, because the records of difficult cases show that it has been frequently done; but generally, as a last resource, after long trials with the other instruments, most of them generally show that no distinct ideas have possessed the minds of the operators as to any advantage of one position of the mutilated head over another.

To place this upon a more accurate and scientific bearing has been the endeavour of this paper, as well as to point out its advantage in practice, as shown in the following cases.

Illustrative Cases.

The results of these cases must not be quoted in respect of the statistics of mortality after perforation, because they are the more severe instances, and because the deaths which occurred were owing to its postponement, not to the operation itself.

Case 1.—January 11, 1863; in Guy's Hospital Maternity. Mrs. ——, about forty years old; has had six children; all her labours were difficult, but all her children born alive. The last is four years old.

She had been some thirty-six hours in labour, without progress, when it was found that the pelvic brim was much reduced in the conjugate diameter. An attempt was made to turn, but the leg would not pass the head. The operator desisting, I made a careful digital examination of the brim, and found the antero-posterior diameter measured not more than two and a quarter inches. This I ascertained by the joints of middle finger, and by the fact that my wrist would not readily turn round at this part. Not only did the sacral promontory fall forwards, but the symphysis projected backwards about half an inch; both bones were thickened and irregularly nodulated. Besides this the transverse diameter was contracted to a small extent on the right side, apparently from the shape of the horizontal ramus of pubis; I therefore at once perforated. I found the bones of the cranium easily separable upon slight traction; so much so that it was impossible to employ much force by the craniotomy forceps. As soon, therefore, as a considerable portion of the calvarium was removed, I passed up the small blunt hook in front of the head, on the outside, and seized the most anterior projection, in order to produce face presentation; the part seized proved to be the supra-orbital ridge. The head immediately rotated, the face coming down with face to pubis. The head was brought down after gentle traction, the chin passing to the left side of pubis in its descent. Just before the head was delivered the hook was changed into the upper jaw, and so continued till the end of delivery.

The shoulders gave much more difficulty, and the passage of the pelvis through the brim was much more troublesome than that of the head after the induction of the face presentation. I may mention that chloroform was given, and acted very benignly. The patient did very well.

Case 2.—March 10, 1863. Mrs. C——, third pregnancy, at full term; the *first* child born dead after a most lingering labour; the *second* delivered alive by forceps after severe traction, with some laceration to os uteri.

I was called into her in the *third*, after having been in labour thirty hours. The head was above the brim, but as

she had not been in very full labour long, I waited twelve hours, during which period no great improvement took place. The brim was probably a little over three inches antero-posterior diameter, and, as she was beginning to lose strength, the forceps were applied—the long pair—with some difficulty, on account of the cicatrices of os and the elongation of its posterior lip. However, I found it impossible to bring the head through the brim by legitimate pulling, upon which I endeavoured to turn. I, however, found the uterus contracted as tightly as possible round the neck of fœtus. There were no signs of pulsation in neck, &c. I therefore gave up the plan of version for perforation; this was accomplished while left hand was in vagina. The bones were very firmly ossified. I had at first great difficulty in drawing down the head by the craniotomy forceps and crotchet, owing partly to the retention of the child by the uterine contraction. But when I had produced face presentation by the small blunt hook, passed on the exterior of skull into orbit, the head came without any great difficulty, and the rest followed without much further trouble.

Case 3.—July 22, 1863. A single girl, æt. 19; much undersized in every respect. The pelvis was puerile, with an antero-posterior diameter of two and a half inches, as far as I could ascertain. The whole diameters were, of course, deficient. The sacrum had fallen forward, causing a very hollow back, and rendering the cavity of pelvis very shallow. She had been in labour twenty-four hours, and the funis prolapsed for twelve hours, before I saw her.

The head was wholly above brim, the os uteri not fully dilated. The medical attendant had already perforated, and had removed some bones from the calvarium; but the opening had been closed up by the pressure of uterine action, and yet the head had not descended, nor could he bring it down by the crotchet or craniotomy forceps. I found that the head would have to be opened afresh, so tight was the closure of the original aperture, in order to employ the crotchet or other instrument inside. However, as there seemed to have been a considerable reduction of the total size of the head, I

determined to induce face presentation, which was accomplished by passing the small blunt hook into the orbit. Traction was made in a backward direction so as to bring down the face, and at same time draw it behind the pubis, on which it rested. Advance was gained, but the orbit gave way; the craniotomy forceps were then employed to the front of the head, and after some variation in the direction of the traction the head was delivered, after which no difficulty arose.

She did well afterwards, but when I heard that she was again pregnant I recommended induction of premature labour; but this she avoided, and placed herself under another medical man, who knew nothing of the precedents, but who was obliged to employ craniotomy, with much difficulty.

Case 4.—Sept. 27, 1863. Mrs. ——, a stout primipara, had been in labour thirty-six hours when I saw her; two attempts to deliver by forceps had failed. The pains had gone off, but the uterus was rather tightly contracted round the child. Patient was rather exhausted, but nothing of moment. The head was above the brim. Thinking it useless to apply the forceps again, I attempted turning, as the child was still alive. Chloroform was given, but I could not bring the foot past the head, which would not recede. During this effort the child died from funic pressure, and thus there was no use in persevering to turn. Upon this perforation was employed. The head was very firmly ossified, so that little collapse of diameters occurred. Traction not producing any benefit, I proceeded to remove the greater part of calvarium, a matter of no slight difficulty, from the excessive rigidity of the bones and general diminution of the cavity of the pelvis. However, by care and time this was accomplished, assisted much by Simpson's craniotomy cutting forceps. After this was accomplished, I passed the small blunt hook into the orbit and made face presentation; in this manner the head came through the brim without trouble, but the passage was rendered difficult by the small pelvic cavity and unyielding nature of the cranial bones. However, after carefully guarding the soft parts, which required much time, the head was delivered, but it required an hour more, and no very gentle

efforts, to deliver the shoulders. This at last was accomplished, and she recovered without any anxious symptoms, rather slower than after normal labour. Reliable measurements of the diameters were not taken; probably antero-posterior of brim was about three and one quarter inches.

Case 5.—A small, single primipara, æt. 19, had been in labour two days when I saw her; fœtal head remaining still above brim, the os having been dilated twenty-four hours. She was in powerless labour, and for the last few hours the death of the child was very apparent from the putridity of the discharge, which filled the room. Pulse 120 p.m. Uterus remaining firmly contracted around fœtus, without the slightest rhythmical action.

I found the antero-posterior diameter of brim not much more than two and a quarter inches, the promontory of the sacrum low down and readily reached by the finger; the cavity ran backwards, at first nearly horizontally, then curving round to the coccyx. The whole brim smaller than normal. The remainder of pelvis imperfectly developed, although the outlet was not so bad as the brim.

I perforated at once, and at once proceeded to remove calvarium; this was readily accomplished, owing to the ease with which the bones separated. By seizing a portion of the frontal bone the craniotomy forceps produced face presentation, and the head was soon delivered, but great difficulty was experienced in delivering the shoulders; the thorax had to be reduced by the crotchet. However, after a short time the body was delivered, and the placenta was obliged to be removed. She continued to evolve the putrid odour till she died, five days after delivery. The secretion of urine was nearly suspended, and she died in a typhoid state. This patient refused chloroform.

Case 6.—This patient I had delivered once before by forceps, and again, about a year before, by perforation, after the trial of long forceps, with much difficulty, she having a brim of not much over three inches in its conjugate diameter, the head of the fœtus also being of large size and highly ossified.

When she became again pregnant she refused the induction of premature labour; I therefore, in conducting the case, told her I would not accept the responsibility; however, as she was very anxious for a live child, I endeavoured to deliver by the forceps first of all. In consequence of spontaneous laceration of a rigid os in the first labour, there was contraction of os, which in the last labour required three days for its expansion. To overcome this I dilated it with elastic water bags, with such effect that in three hours I was able to pass the long forceps, the head being still above the brim; it was a very firm one, and evidently large. As I had anticipated, I found the forceps useless, even using them to the limits of safety. I had therefore to perforate, evacuating brain and fracturing the bones, but I could not deliver by the craniotomy forceps and crotchet, nor until I had passed the small hook into orbit and brought down the face first. She was about again on the sixth day. Chloroform in this case could not be employed, owing to the excessive bronchitic dyspnœa of the patient. This was a great disadvantage, as her intolerance of pain made it very difficult to pull downwards properly. Had I not been able to deliver as mentioned, I should have had a much greater amount of trouble.

Case 7.—Guy's Hospital Maternity, January 23, 1863. Mrs. B——, primipara, about twenty-five years old. There was a tumour in posterior part of pelvic cavity, extending from tip of coccyx to half way towards the promontory of sacrum, diminishing the antero-posterior of cavity to about half, and extending laterally about half way forwards; it was semi-elastic, with harder parts in places, but contained no fluid, as proved by the use of the trocar and canula. Some hours of full pains had elapsed without any progress past the tumour, upon which I employed the forceps, without any result. The more traction was employed the more the tumour bulged in front of the head. After many useless efforts I determined upon perforating the head. This I did between the blades of the forceps, but no descent took place upon pulling firmly. They were removed, and the craniotomy forceps and crotchet were used without benefit; the calvarium was then broken up

and in part removed, whereupon I passed the crotchet outside the skull, bringing down the face foremost, when the head slowly descended and was delivered. The remaining bones of the calvarium were pressed into the base of the skull, so that the vertical diameter was reduced to nearly its minimum. The head was large. The patient recovered well.

Case 8.—This was a case in which the arm had descended with the head. The medical practitioners in attendance had used forceps, and many times endeavoured to return the arm above the head; but neither could they draw down the head, nor return the arm into the uterus. After efforts of some hours' duration they perforated and removed the calvarium, with no better result. The patient was passing into the powerless condition fast; the pulse intermittent, with sordes on the teeth, brown furred tongue, haggard expression, and tympanitic abdomen. The head was partly in the cavity of pelvis. To her in this state I was called in. I tried to draw it down with the crotchet and craniotomy forceps, which was partially successful, but on placing the small blunt hook on the outside of skull and fixing it on orbit, the skull, now deprived of a great part of its calvarium, was thereby quickly tilted, and delivered without any further trouble, the chin gliding underneath the pubis rapidly, the arm coming down along with it. However, this patient never rallied, but died within six hours after.

Details of Experiments.

Experiment 1.—*Full-sized fœtus.*

	As in vertex, occipito-frontal.	As in face presentation, mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . .	$4\frac{4}{8}$	5	$3\frac{6}{8}$	$3\frac{2}{8}$
After perforation .	$4\frac{1}{8}$	$3\frac{6}{8}$	—	—
Calvarium nearly removed	—	2 (now mento-frontal)	—	
Ditto, quite removed	—	$1\frac{4}{8}$ (mento-orbital)	—	—

When "after perforation" is mentioned, here or elsewhere, it means the simplest form in which the operation is employed.

Experiments 2 to 4 inclusive.

Experiments were made with three full-grown fœtuses.

The calvaria were removed, and in all the mento-orbital diameter did not exceed $1\frac{4}{8}$ inch.

Experiment 5 (see Case 1).

In this case, where, with careful digital measurement, the pelvis of the mother possessed a conjugate diameter of only $2\frac{4}{8}$ inches,—the fœtus, moreover, weighed about 10 lbs. ($9\frac{1}{2}$ lbs. without brain or blood)—the head was perforated, and the principal part of calvarium was removed; the craniotomy forceps were useless as tractors, on account of the ease with which the bones separated from one another. The small blunt hook was then passed on the outside of head and fixed into the orbit, upon which the face was easily drawn down; with moderate pulling the head was delivered, certainly with much more ease than the pelvis of the fœtus. The chin was anterior to left of symphysis pubis.

On measuring the head after, I found the mento-orbital depth $1\frac{4}{8}$ to $1\frac{6}{8}$.

But when the occiput was placed in the position in which it would be if it were hooked down first, I found the smallest diameter by which it could pass the brim $3\frac{4}{8}$ inches. That is, from about the supra-orbital ridge to the nape of neck.

With the face presenting, the greatest opposing diameter was, without any compression at all, $2\frac{2}{8}$ inches, but a gentle compression easily reduced it to $1\frac{4}{8}$ inch.

Experiment 6.—*Full-term fœtus; head firmly ossified and unyielding.*

This was a case of perforation for obstruction by a tumour in cavity of sacrum (see Case 7), in which, after evacuation of brain, fracturing the bones, and removing some portions of them, face presentation was induced by the blunt hook, and the head drawn away without any great difficulty, but with the frontal and other bones completely pressed down into the base so as to pass the tumour.

When the bones were replaced the diameters were measured; they were as follows:—

Occipito-frontal	$3\frac{5}{8}$
Mento-frontal	$3\frac{2}{8}$

This shows a gain, without compression, of $\frac{3}{8}$ inch. But in the state in which it was delivered the latter was reduced to much less, and when the calvarium was removed the mento-frontal was reduced to the same as in former examples.

The bizygomatic diameter was $3\frac{2}{8}$ inches.

EXPERIMENT 7.—*Full-term fœtus.*

Natural size { Occipito-frontal . $3\frac{6}{8}$ inches
Bi-parietal . . $3\frac{3}{8}$ to $3\frac{4}{8}$,,

The calvarium was removed, except the occipital bone, which was bent in, and the scalp drawn down over all the edges.

Occipito-frontal was 3 inches (occiput downwards).
Orbito-mental ,, $1\frac{2}{8}$,, (face downwards).

I could not make any opposing diameter with occiput downwards less than three inches.

I then tested the reduced head through a pelvis whose antero-posterior diameter was not more than two inches; face downwards, chin anterior; it passed through without any difficulty; with the chin posterior it passed with some trouble, but this was got over by bringing the chin well down. But the tendency was for the chin to pass anteriorly as it came down. But with the occiput drawn downwards it was impossible to cause it to pass the brim, or, indeed, in any other direction than face presenting.

EXPERIMENT 8.—*Full term, weighed nearly* 11 *lbs.*

	As in vertex presentation, occipito-frontal.	As in face presentation, mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . .	$4\frac{2}{8}$	$4\frac{6}{8}$	4	$3\frac{3}{8}$
After perforation .	$4\frac{6}{8}$	$4\frac{4}{8}$	—	—
Calvarium in part removed . . .	$4\frac{2}{8}$	$3\frac{6}{8}$	—	—
Calvarium quite removed . . .	—	$1\frac{1}{8}$	—	—

EXPERIMENT 9.—*Full-term fœtus.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.
Natural size . . .	$4\frac{2}{8}$	$4\frac{2}{8}$	$3\frac{5}{8}$
After perforation . .	$3\frac{7}{8}$	$3\frac{1}{8}$	—
Calvarium removed .	—	$1\frac{2}{8}$	—

In this case the first two diameters are the same, but after perforation, although both have gained by it, the mento-bregmatic has gained the most in reduction.

EXPERIMENT 10.—*Full-term fœtus.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic
Natural	$4\frac{6}{8}$	$4\frac{6}{8}$	$3\frac{3}{8}$	3
After perforation .	4	$3\frac{6}{8}$	—	—
Calvarium in part removed . . .	$3\frac{5}{8}$	$2\frac{5}{8}$	—	—
Calvarium quite removed	—	$1\frac{4}{8}$	—	—

Here, also, it will be seen that the first two diameters are the same, but after perforation the mento-bregmatic begins to be the least, after which it becomes the least of all.

EXPERIMENT 11.—*Full fœtus, weighing* 10 *lb.*

After perforation, and rather more collapsed than in above cases	occipito-frontal was	$3\frac{4}{8}$ to $\frac{2}{8}$
	mento-bregmatic	3
	or without lower jaw	$2\frac{6}{8}$
Calvarium removed		$1\frac{4}{8}$

or rather less.

EXPERIMENT 12.—*Full-term fœtus, with head rather flattened above.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . . .	4	$3\frac{3}{8}$ to $3\frac{1}{8}$	$3\frac{5}{8}$	$3\frac{2}{8}$
After perforation .	$3\frac{6}{8}$	$3\frac{1}{8}$	—	—
Cranial bones all fractured . . .	$3\frac{1}{8}$	$2\frac{3}{8}$	—	—
Cranial bones quite removed . . .	3	$1\frac{2}{8}$	—	—

In this case long labour had reduced the mento-bregmatic diameter below the occipito-frontalis, so that the former all through possessed less length than the latter.

EXPERIMENT 13.—*Rather small full-term fœtus.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . . .	4	$3\frac{4}{8}$	$3\frac{4}{8}$	$3\frac{4}{8}$
After perforation .	$3\frac{2}{8}$	$3\frac{2}{8}$	—	—
After removing nearly all calvarium . .	$2\frac{6}{8}$	$1\frac{4}{8}$	—	—

In this instance it will be observed that from the first the mento-bregmatic diameter was the best, so that face presentation would have been as easy as vertex, especially when it is observed the biparietal and bizygomatic are the same.

EXPERIMENT 14.

In this case it was found, after removing the greater part of the calvarium, that the—

Occipito-frontal, or its representative, the fronto-cervical, was . . . . . $2\frac{6}{8}$ inches.
Mento-bregmatic, or its representative, mento-orbital, was . . . . . 2 ,,
Bizygomatic . . . . . $2\frac{5}{8}$,,

EXPERIMENT 15.

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . . .	$3\frac{5}{8}$	4	$3\frac{4}{8}$	$3\frac{2}{8}$
After perforation .	$3\frac{5}{8}$	$3\frac{3}{8}$	$3\frac{2}{8}$	—

In this case it will be noticed that the fronto-occipital was not sensibly altered by perforation, while the mento-bregmatic was considerably reduced, as also the biparietal.

INTRODUCTION TO DISCUSSION* ON

PLACENTA PRÆVIA.

The collective wisdom of the authorities of this Section having pronounced solemnly the fearful word "Blood," proceeded further to do me the honour of asking me to open a discussion that should, as the result of our combined talents and experience, draw out the plan best calculated to arrest its terrors and to staunch its stream; and then the same authoritative wisdom also thought that it would be helpful to the profession generally if that formidable cause of blood loss—namely, placenta prævia—were the immediate subject of your consideration.

Thus it is that I find myself in this responsible position; and would ask you kindly to take off some of its weight, the more so as the time allotted me is only fifteen minutes—a very short time to treat of only one case of placenta prævia—and you only ten minutes. As, therefore, all of us must necessarily be brief, I shall confine my remarks to the treatment of this condition, passing over the theories which have been advanced—and will be advanced later on in this Section—to explain the cause and nature of the position, and only very briefly touching on the after-treatment.

And, because I am anxious to present so important a subject free from personal considerations, lest these may be a hindrance to our conclusions, I shall avoid all reference to the authors of the various plans which have one way or other within the

* Introduction to a discussion on Placenta Prævia, in the Section of Obstetric Medicine and Gynæcology, at the Annual Meeting of the British Medical Association, held in Leeds, August, 1889.

last thirty years reduced the death-rate from thirty per cent. to somewhere near five per cent. But I may say this much, that the early handling of these cases and the general antiseptic management of midwifery cases, both during and after delivery, can rightly claim to have had much to do with these excellent results. I think we shall all agree :—

1. That when the placenta is inserted somewhere within the lower third of the uterus, there is very generally a liability to hæmorrhage. It would be difficult to say that it is absolutely "unavoidable," because I have seen the placental edge a little over the os without the slightest bleeding; and doubtless there are cases of what is called "accidental hæmorrhage," which have occurred with a low insertion of the placenta. But I take it that for practical purposes, when the placenta is inserted about or over the os uteri, hæmorrhage is to be expected before or upon the supervention of labour, whether premature or at full time.

2. I think also most of us will agree that, when once hæmorrhage has declared itself, there is no security for the patient, but that her life is in imminent danger from liability to recurrent bleedings.

3. My experience teaches me, and I think I shall gain your assent to this also, that the relative position of the placenta to the os has no influence on the frequency or quantity of the blood loss. In other words, whether it be marginal insertion or central, the risk is the same.

If you join assent with me so far, I would submit this proposition as a deduction from the foregoing, as a rule of practice, namely :—

That as soon as we ascertain the case to be one of placenta prævia, we should make arrangements for terminating the pregnancy at the earliest possible time. I believe also I shall have your assent to this, the importance of this rule having been constantly shown in my practice : as far as possible we should not leave our patient; certainly not to an indefinite future.

Having accepted this rule, our next consideration is : In what way and by what means we shall accomplish this. Perhaps it will clear the ground if, before we proceed in this

direction, we take note of the main points we have to combat. And, first, we desire to prevent further bleeding; secondly, we wish to overcome the resistance the substance of the placenta presents to the passage of the fœtus. But also we cannot in the majority of these cases leave out of consideration the state of anæmia which the patient presents from the hæmorrhage which has already occurred. Sometimes so profound that the smallest movement, even ordinary examination, extinguishes the pulse. Of course, in all cases, it behoves us to carry out our manipulations with as much gentleness as possible—choosing, especially in the severer cases of anæmia, that plan the least disturbing.

Let me consider these points more completely:—

1. The bleeding can be stopped by pressure: either by tampon; by the head being pressed down by the uterine efforts, or drawn down by the forceps; or by the leg and breech drawn down if presenting, or made to present by turning.

With regard to the pressure by the tampon, I believe the general consensus in British midwifery is against its use, and with this I am in accord—partly because, unless perfectly done, and this is difficult, it is of no use; and if perfectly done, it is very distressing to the patient, especially if it be necessary, which it often is, to renew it to avoid septic generation. Still, it has some advantages, because, by distending the roof of the vagina, we also dilate the os, and provoke uterine action. But its action is tedious, and lacks the precision afforded us by the more recent methods.

2. But the uterine action alone will occasionally suffice to produce sufficient pressure on the inner surface of the placenta to stay bleeding; though it requires the head to be entering the os before it can efficiently do this; so that, if we found the os uteri fully dilated, the placenta marginal, and the membranes tense, we might rupture the membranes, and if the head descended we should not expect further bleeding, and the case may be allowed to end naturally. But, practically speaking, these cases are not the most frequent. If the placenta were mainly over the expanded os when the membranes were ruptured, the head, retarded by the bulk of

placenta, would not effectively enter, and then it would be our best plan to press the flap of placenta aside and apply forceps, drawing down the head into the os, retaining it there by gently hanging on to the forceps till the pains were sufficient to expel the head, assisting them by gentle traction.

3. But it is very possible that we may have no forceps, and for one reason or another the head is unable to enter the os, then we are under the necessity, in order to place our patient in safety, to bring the breech to the os by turning. This can be accomplished by either slowly pushing the hand through the os, seizing the leg, and bringing the breech into the os; or by the combined external and internal version, effecting the same result but in a gentler way. Of course, if the breech present originally, all that will be needful will be to bring down the leg, fixing the breech in the os. The hand should retain hold of the leg, so that the weight of the arm gives pressure sufficient to prevent further bleeding. The great object of these manœuvres is to produce pressure enough to check bleeding, and this pressure need not be much.

In both the employment of the forceps and in turning the action is not for instant delivery; as soon as the os is plugged by head or breech the object is accomplished, a little additional traction as the pains come on sufficing for the delivery, which may be left mainly to Nature. Thus we gain time, valuable to our patient, wherein we can sustain her energies while the circulation is recovering its balance. When the os is fully expanded, the engaging firmly of head or breech is followed in an hour or two by uterine action. Supposing the os is not sufficiently expanded to introduce forceps, or to readily turn, then the os uteri can be expanded by the dilating bags, or in the event of our not having them, the os could be gently dilated by the fingers introduced one by one. But if the os be so small as that, then I think the best plan would be to proceed by the combined method of version, as, the leg and breech being of conical form, it assists dilatation, and, as the os expands, it keeps up a corresponding pressure on the bleeding surface, for it has been constantly found in a large number of cases that if very slight traction is kept up just at first, no further bleeding has recurred.

If with all these states of os uteri, particularly if small, the placenta be attached more or less across, it is of much advantage to separate gently the placenta for a forefinger's length; this very distinctly releases the lower portion of the uterus from the restraint caused by the attachment of the placenta, and this is very noticeable if the margin of the placenta be across the os, because the margin is the part most firmly adherent to the uterus. By this separation the flap of the placenta also somewhat retracts, and is pushed aside as the head or breech descends. If the membranes are perfect, then they need not be ruptured till the act of version; and when this rupture occurs, a still further easement is felt in respect of the rigidity.

Now, with respect to the detachment of the placenta from around the os, it is necessary to make a few remarks.

The act of doing it may be attended with severe and continuing hæmorrhage, particularly in central insertion of the placenta. In two cases which occurred to myself with central insertion, I was alarmed at the large flow, and this was only restrained by penetrating the centre of the placenta, performing bipolar version, and bringing the leg through the os, which was so small that scarcely two fingers could enter.

To discuss the source of this bleeding would, I am afraid, take up too much of the time allotted me, and therefore I would call attention to the practical fact that sometimes in detaching the placenta we have severe bleeding, whilst at other times we may not; indeed, these cases are the more frequent, and it has practically been found that a free, bold detachment of the placenta as far as the fingers can reach has the effect in a large number of cases of checking bleeding for a time, and thus we come to another means of restraining bleeding in placenta prævia. But inasmuch as by this action we have the placenta partially detached, and as our experience tells us that both in "accidental" and in *post-partum* hæmorrhage there is, with partial detachment, liability to floodings, so when we employ this method as one which will give us time by temporarily restraining bleeding whilst the os uteri is dilating and the patient recovering her powers, yet we must treat it as a measure itself requiring supervision. This

my experience bears out. In other words, it is imperative that we should be in close attendance on the patient, ready to act should any bleeding of importance occur, the action indicated being, of course, either to bring the head down by forceps or breech by turning. We must also remember, when we detach the placenta, we cut off the fœtus from its aëration to the same amount; and although it may be said that when it comes through the os about the same amount of the placenta will be made useless by pressure, yet it may be rejoined that the effect of the detachment will generally extend many hours longer than that of the pressure. If the placenta be inserted more or less centrally, these considerations do not enter, for the placenta sooner or later must be detached to an extent probably fatal to the child.

I would venture a suggestion here, in order to lessen the bleeding on detaching the placenta, that the finger should keep close to the uterine surface, rather pressing it from the surface of the placenta than the placenta from the uterus. If this plan does not lessen the loss from the maternal side, it may prevent loss from the fœtal villi, which must occur when we lacerate the placenta.

Now there is a certain class of cases, practically the more numerous, in which there has been severe loss, and it is necessary to secure the safety of the patient; but where the os is so small that we cannot put in operation the foregoing plans, so also where, although the os uteri be somewhat expanded, we have at hand neither forceps nor dilating bags, or where, in peeling off the placenta, we are confronted with alarming blood-loss—in these cases the only plan we have at command is version by combined internal and external method, and in these cases we see its great advantages. But when this method of version is used it must always be understood that it is not the version itself which is the hæmostatic remedy, but that by it we are enabled to bring the fœtal leg or breech down on the placenta from within, and so are able at an earlier date than otherwise possible to stay the flow. It is possible in some case to dilate the os with fingers, and after some time, and with more or less force, to pass the hand through the os and reach the leg; but I feel

quite sure that anyone who has tried the two plans will, without hesitation, pronounce in favour of version by the newer method; and it is interesting to note that, although very little or no uterine action was observed before turning, yet shortly after the leg has been brought in through the os the pains commence and continue, so that labour is accomplished without requiring much assistance from the attendant, often within a couple of hours.

But in selecting our plans for the safety of the mother, we cannot leave out of consideration the preservation of the child so far as possible; and here I think we shall all agree in choosing, where the state of the os, the position of the placenta, and the condition of the mother permit it, delivery by the head as the most likely to secure its safety—that is to say, with a fully expanded os and placenta marginal. But when the os is only large enough for two fingers to pass, and the placenta much across the os or central, the time which elapses before labour is over, and the great reduction of its aëration adds so much to its jeopardy, that the extra risk produced by pressure on its funis as the result of turning is scarcely to be taken into calculation. In either case the death-rate is very high. But if for any reason there has been laceration of the placenta, there will also be laceration of the villi, and in consequence an oozing of blood will be going on, serious to the vitality of the child, if it be free or continuing during long hours, whilst we are waiting for the expansion of the os and pressure of the head, so that risk by pressure on funis after turning is, I think, pretty evenly balanced in the other mode by the loss of its blood. If, after gently detaching the placenta just enough to set free the lower portion of expansion, we quickly bring the leg or breech into the os, all loss from the placenta is checked, as it is at the same time from the maternal vessels. In all cases of labour before the end of the seventh month, and where we know the fœtus to be dead, of course the question of preserving the life of the fœtus does not arise.

In those cases where the anæmia is so profound that almost the least movement eclipses the pulse, our difficulties are very great, but whatever we do we must do it with extreme

gentleness. Our first object is of course to prevent further loss, while we sustain the powers by restoratives till the circulation recovers its balance. If there be no bleeding, we had better wait, but keeping watch at the bedside in case it return. Should it do so, or when the patient has rallied, we may elect to use forceps or combined version according to circumstances. But as detachment of the placenta may be attended by more or less blood loss, I should not advise this method. But these cases are so formidable, that often before we see them their fate is sealed, and while we are waiting for the rallying, already coagula in the heart have formed, and slowly but surely block the current.

Rules.

I would propose, therefore, the following rules, deduced from the above considerations, for your acceptance :—

1. After diagnosis of placenta prævia is made, we proceed as early as possible to terminate pregnancy.

2. When once we have commenced to act, we are to remain by our patient.

3. If the os be fully expanded and placenta marginal, we rupture the membranes and wait to see if the head is soon pushed by the pains into the os.

4. If there be any slowness or hesitation in this respect, then we employ forceps or version.

5. If the os be small and placenta more or less over it, the placenta is to be carefully detached from round the os; if no further bleeding occur, we may elect to wait an hour or two. Should the os not expand, and if dilating bags are at hand, the os may be dilated. If it appear the forceps can be admitted easily, they may be used; but, if not, version by combined external and internal method should be employed, and the os plugged by the leg or breech of fœtus; after this is done the case may be left to Nature, with gentle assistance, as in footling and breech cases.

6. If the os be small, and if we have neither forceps nor dilating bags, then combined version should be resorted to, leaving the rest to Nature, gently assisted.

7. If during any of the above manœuvres sharp bleeding should come, it is best to turn by combined method in order to plug by breech.

8. Where the fœtus is dead, or labour occurs before the end of the seventh month, combined external and internal version is the best method, no force following.

To these I may add the following: If, however, we employ a routine method in all cases, it will be found that the version by combined method, no force following, gives a result as good as, if not better than, any.

After-Treatment.—The after-treatment must be conducted on the modern principles: should oozing occur after the expulsion of the placenta, the swabbing of the lower uterus by styptics will be easy; and, inasmuch as the outlet of the uterus is liable more especially to be blocked by adherent clots, it will be wise to irrigate the uterus daily with some antiseptic solution, or insert iodoform pessaries in the vagina, particularly if the irrigation cannot be done.

A SHORT NOTICE OF THE LIFE AND WORK

OF THE LATE

J. BRAXTON HICKS,

M.D., F.R.S., F.R.C.P.,

FROM THE

ANNUAL PRESIDENTIAL ADDRESS DELIVERED BEFORE THE OBSTETRICAL SOCIETY OF LONDON, FEBRUARY 2ND, 1898.

BY

C. J. CULLINGWORTH, M.D., HON.D.C.L., F.R.C.P.

In endeavouring to give an adequate account of the life and work of Dr. Braxton Hicks in the short time at my disposal, I feel I have before me a difficult task. He was one of the founders, and for many years one of the most active supporters of our Society, a past President, a recently elected Honorary Fellow, and a contributor of no fewer than forty papers to its 'Transactions;' on these grounds alone it would be fitting that the annual Address should contain as full an account as possible of his personality and his career. But when it is also remembered that the science and art of obstetric medicine owe to him several of the most important advances of recent years, and that his name has taken a permanent place amongst those of the most distinguished British obstetricians, there is still more abundant reason why our records should contain a more than usually full appreciation of the man himself as well as of the work of his life.

John Braxton Hicks was born at Rye, in Sussex, in the year 1823. He was the second son of Mr. Edward Hicks, of

Lymington, who was at one time a banker, and for many years held the position of chairman of the bench of county magistrates. From the age of twelve to fifteen Braxton Hicks was educated as a private pupil of the Rev. J. O. Zillwood, of Compton Rectory, near Winchester. He became apprenticed to a medical practitioner in the town where he lived in 1842, and at the age of eighteen he entered as a medical student at Guy's Hospital. He was a favourite both amongst his teachers and his fellow-students. "I shall never forget," writes an old fellow-student, Dr. Daniel Hooper, "his amiable, cheerful expression, bright, piercing eyes and noble forehead; his alacrity was remarkable; he was always busy—I never saw him idle for one moment—he would hurry with a very quick step to the lecture theatre, literally run down the steps (a huge volume of Pereira, perhaps, under his arm) to the bottom bench, and there sit motionless and attentive till the lecture was over." He took first prizes in anatomy, materia medica, practical chemistry and botany, and he also won a medal for double sculling given by the hospital boat club. He was very fond of botany, and in the summer vacation collected specimens from the New Forest. In 1844 he passed the first examination for the degree of Bachelor of Medicine at the London University, taking honours in every subject, and carying off the exhibition and gold medal in materia medica. In 1847 he passed the final M.B. examination, obtaining honours in physiology and comparative anatomy, medicine, and surgery. He soon afterwards received the diplomas of the Royal College of Surgeons and the Apothecaries' Society, and in 1851 took the degree of M.D. at his university. Wishing to marry and to settle in practice, he entered into partnership with the late Mr. W. Moon, of Tottenham, and became a highly respected general practitioner. But in 1859 he was invited by his old hospital to accept the post of assistant obstetric physician, whereupon he relinquished general practice and came to reside in the Borough.

In the same year he passed the examination for the membership of the Royal College of Physicians, of which he was elected a Fellow in 1866.

In 1870 he was appointed senior obstetric physician to Guy's Hospital, and lecturer on obstetrics at the school. These appointments he continued to hold until 1883, when he was elected consulting obstetric physician. Feeling that the age limit at his own hospital had cut short his career as a teacher somewhat prematurely, he acceded in 1888 to a request to become obstetric physician to St. Mary's Hospital in succession to the late Dr. Meadows, the then assistant obstetric physician being considered at the time a little too young for the full responsibility of the senior post. This appointment Dr. Hicks held for several years, doing his hospital work conscientiously, and taking a share of the systematic teaching in the school. But he never forgot that he was a Guy's man, and that his early successes and interests were connected with that hospital. He was for several years Examiner in Obstetric Medicine at the University of London, and held a similar position at the Royal College of Physicians from 1872 to 1878, and again from 1889 to 1893. For many years Dr. Braxton Hicks was physician to the Royal Maternity Charity, and he was also for a time physician to the Royal Hospital for Women and Children in Waterloo Road.

Dr. Braxton Hicks was all his life a devoted student of natural science, and many contributions from his pen appear in the 'Proceedings of the Royal Society,' in the 'Transactions of the Linnean Society,' and in the 'Journal of Microscopical Science.' On the 5th of June, 1862, he was elected a Fellow of the Royal Society. I have been favoured by the clerk of that Society with a copy of his nomination paper, which I here reproduce not only on account of the interest attaching to the names of his proposers, but as showing the precise grounds on which that great distinction was conferred upon him. He is described as residing at No. 6, Wellington Street, London Bridge, and as being the author of the following scientific papers :—

"On Certain Sensory Organs in Insects hitherto undescribed," read before the Royal Society, and published in abstract in the 'Proceedings,' May 26th, 1859.

"On New Organs of the Antennæ of Insects," and "On

Organs on Nervures of Wings," two papers in the 'Transactions of the Linnean Society.'

"On New Organs on the Halteres of Diptera," in the 'Proceedings of the Linnean Society.'

"On a New Species of Draparnaldia," and "On Amœboid Conditions of *Volvox globator*," 'Microscop. Journ.,' April, 1860.

"On the Development of the Gonidia of Lichens in relation to Unicellular Algæ," 'Microscop. Journ.,' Oct., 1860.

"New Sensory Organs in Insects," in the 'Linnean Society's Transactions,' 1860.

"On the Homologies of the Eye and its Parts in Invertebrata," read before the Royal Society, January, 1861.

He is lastly spoken of as part author of a little work published by Van Voorst, and entitled, 'Humble Creatures [the Earthworm and House-fly].'

The following names of Fellows of the Society are attached to the document:—W. B. Carpenter, J. Lubbock, G. Busk, E. Lankester, F. Currey, J. J. Bennett, J. Hilton, A. S. Taylor, T. Bell, C. Ansell, and E. W. Brayley.

It will thus be seen that it was mainly his contributions to entomology and botany that obtained for him the coveted blue ribbon of science. His interest in these studies continued to the end of his life, and many other papers relating to them appeared from time to time in the Journals and Transactions to which they were specially appropriate. To us, however, his work in connection with our own Society and the science of obstetrics must necessarily have the chief interest, and of this I must now speak. He was one of the founders of the Obstetrical Society of London, and took an active interest in it from the first. He twice served on the Council, namely, in 1861 and 1862, and again in 1869. He held the office of Hon. Secretary from 1863 to 1865, was Vice-President from 1866 to 1868, became Treasurer in 1870, occupied the presidential chair during the years 1871 and 1872, and was elected an Honorary Fellow in 1896. To the 'Transactions' of the Society he contributed, as I have already said, no fewer than forty papers. He was a close and accurate clinical observer, and many of his papers which record single cases

or groups of cases are models of what such contributions should be. To these I shall not have time further to refer; their titles will be found in the bibliography appended to this Address. But of some of his more important papers I must speak a little more at length.

In the month of July, 1860, there appeared a paper in the 'Lancet' on "A New Method of Version in Abnormal Labour," in which were described "five cases of placenta prævia in illustration of its peculiar applicability to that formidable complication of labour." In the same journal for February 9th, 1861, cases were given of other forms of labour to which the new method had been successfully applied. It was by these papers that Dr. Braxton Hicks first brought before the profession his now celebrated method of version by combined external and internal manipulation. He chose that mode of communicating the method to the profession, in preference to laying it at once before a society, because he considered that the subject was too new for its merits to be then discussed with satisfactory results. When, however, he had had more experience of the method, and had tested and proved its value, he made it the subject of a paper which was read before this Society in November, 1863. In the following year the paper reappeared in a revised form as a thin octavo volume of seventy-two pages, published by Longmans and Co., with the title "On Combined External and Internal Version." Up to within a very few years of this period the operation of turning, whether the object was to bring down the head, breech, knee, or foot, had involved the introduction of the whole hand into the uterus. Cephalic version was very seldom adopted on account of the difficulty of grasping the head and retaining it at the os uteri: whilst in regard to the other forms of version, foot-turning had almost entirely taken the place of the older method of breech-turning. All these methods, however, required the introduction of the whole hand, and generally part of the arm, within the uterus, a process which added materially to the painfulness and difficulty of the case, not to mention the valuable time often lost whilst waiting until the os and cervix had become sufficiently dilated for the operation to be performed. In a

few cases men like Collins, of Dublin, and Dr. Robert Lee, of St. George's, had occasionally shortened this period of delay by pushing the child round with the finger, but the practice was only now and then successful. Dr. Robert Lee had also pointed out that in some cases of transverse presentation it was unnecessary to pass more than two fingers into the os uteri in order to seize the knee, a plan which he named "two-finger turning." Meanwhile several German observers had demonstrated the possibility of turning the child in utero from the outside. Braxton Hicks showed how, by the combination of these two methods, each acting upon opposite ends of the fœtus, there was obtainable a certainty and a celerity of which neither plan was capable when employed alone.

In the discussion which followed Dr. Hicks's paper at this Society, Dr. Robert Barnes stated that an admirable memoir, in which the principle of turning by external and internal manipulations was fully described, had been published by Wigand in 1807. Not having any knowledge of Wigand's paper, Dr. Hicks was unable at the time to call this statement in question, but before the paper and discussion were printed he acquainted himself with the precise purport of Wigand's essay, and embodied the result in an appendix. He bore generous testimony to the value of Wigand's suggestions, but he showed that they were by no means identical with his own. Wigand had discovered that pressure upon the exterior would make the fœtus move to a considerable extent, and that by pressing on both poles of the child in opposite directions, he could bring that end which was nearest into the os uteri, but he only employed the inner hand to guide and receive the head or breech into the os. The difference is important, for while, by his method, Wigand was merely able to rectify abnormal presentations, the adoption of Hicks's plan enabled the operator to accomplish version in any manner, whether partial or complete, podalic or cephalic. Wigand never contemplated complete version, and he expressly mentioned that his method was not applicable to cases of hæmorrhage, or of prolapse of the funis, or of convulsions; in other words, the most important cases requiring version could not

be treated by the method he suggested. The plan described by Hicks, on the contrary, combined the power of rectifying abnormal presentations with that of performing complete version. It differed from all previous methods in enabling the operator to produce cephalic or podalic version at will, and in being capable of application as soon as the os uteri was sufficiently dilated to admit one or two fingers. The advantages thus gained are obvious. It permits early intervention in such cases as neck, shoulder, and transverse presentations; it furnishes a new and safe resource in cases of convulsions in which the introduction of the hand is attended with much risk, and in which speedy delivery is desirable; it diminishes the danger of turning in those cases of contracted pelvis in which turning is the most appropriate treatment; and it removes from the operation the risk of producing fatal shock when it is necessary to turn the child under circumstances of extreme depression on the part of the mother. But it is especially in the treatment of placenta prævia that it has proved of the greatest service, both in saving life and in diminishing professional anxiety. When, summoned to a case of severe hæmorrhage from this cause, the medical attendant found the cervix only sufficiently expanded to admit one or two fingers, he had hitherto been compelled to wait for hours whilst endeavouring to dilate the os, or to content himself with plugging the vagina and endeavouring to press the head on to the placenta by exerting pressure on the fundus uteri. "Anything," to use Dr. Hicks's own forcible words, "which gave the practitioner some power of action was to be earnestly welcomed; anything better than to stand with folded arms, incapable of rendering assistance for hours and even days, every moment of which might be carrying the sinking and suffering patient nearer to the grave." By the new method, not only would bleeding be arrested, but time could be saved to an extent of which the value can scarcely be over-estimated. As soon as the os uteri would admit two fingers, version could be performed and the os effectually plugged by drawing through it the foot and leg, and exerting such gentle traction as the mere weight of the operator's arm, in retaining hold of the limb, is sufficient to

supply. Henceforth the case could be watched with as little anxiety as an ordinary case of breech presentation. Rapid extraction is not only unnecessary, but, as favouring post-partum hæmorrhage, extremely dangerous. Dr. Hicks was very emphatic on this point. "What is the use," he says, "of hastily delivering before the os is well dilated and before the system has time to rally from the effects of flooding and of the version? Many of the deaths following placenta prævia may, I believe, be fairly attributed to too rapid delivery. How much must the collapse be increased and the uterus injured by endeavouring to drag the head through the yet rigid os! Turn, and if you employ the child as a plug, the danger is over. Then wait for the pains, rally the powers in the interval, and let nature, gently assisted, complete the delivery."

Dr. Hicks had to wait many years before he had the satisfaction of finding his suggestions adopted. In spite of his fecundity as a writer, the advertising instinct was wanting in him. Had it been otherwise, he would have been long ago recognised by all the obstetricians of the civilised world as one of the greatest benefactors of lying-in women that this age has produced. When, after the lapse of time, obstetricians did awake to the value of his work, the mortality from placenta prævia at once fell from thirty per cent. to something near five per cent.

In the year 1867 Dr. Braxton Hicks made a still more valuable contribution to the literature of obstetrics; I refer to his paper "On the Condition of the Uterus in Obstructed Labour," probably one of the most admirable communications that has ever appeared in our 'Transactions.' The greatest confusion and ambiguity had hitherto existed as to the precise meaning of the terms "cessation of the pains," "powerless labour," and "exhaustion," and the interpretation and significance of the train of symptoms which these terms were used to denote.

There were but two British writers on obstetrics who, up to that time, appear to have observed the real condition of the patient in obstructed labour, viz. Dr. Murphy and Dr. Rigby. These authors had noticed that, when any obstacle prevents

the exit of the fœtus, the pains, after being suspended for a time, returned with a totally different character; they became short and extremely severe, and never entirely passed off in the intervals. These writers had further noticed that if the hand was placed on the abdomen the uterus was felt to be as hard and contracted during an interval as during a pain, and so sensitive that the patient could scarcely bear to be touched. In other words, they had observed that a state of continuous action was substituted for the rhythmical pains. This condition they attributed to inflammation consequent upon the injury done to the soft parts. Dr. Hicks was the first to appreciate the importance of this observation, but he did not accept Murphy and Rigby's explanation. He pointed out that even in a normal labour the demand made on the nervous force by the action of the uterus, the largest involuntary muscle in the body, is so enormous that, if it were not for the replenishing that takes place during the intervals, the constitutional effects would be disastrous. He showed that, if from any cause the length of the ordinary intermissions was curtailed, the powers of the system would soon undergo a serious drain; and that, if matters went further and uterine action became continuous, symptoms of dangerous exhaustion would inevitably supervene. In short, he showed the state of tonic contraction of the uterus and the constitutiona phenomena that accompany it to be the result of nervous exhaustion, the true source of danger in all cases of obstructed labour.

He went on to show that there are two distinct classes of cases in which the pains, having once been vigorous, cease to be rhythmical or apparently subside, and that it is of the utmost importance to distinguish between these classes in order to be guided to the proper treatment. "The first and simplest form," he says, "is well known, and is that in which the uterus is simply quiescent, resting passively for a time while the nervous power is being, so to speak, collected; after a time the uterus begins to act, and the labour is accomplished. In this case there is no rise in the pulse; generally, on the contrary, it is weak and feeble; nor are there any untoward symptoms but languor and some faintness. The

reflex function is deficient, and its action sluggish, and therefore the demand on the constitution to supply nerve force is proportionately small." Here we have the first clear description of what Scanzoni called, and is now known as, *secondary inertia* of the uterus. "The second form of subsidence of the pains is . . . . of the opposite character. The uterus becomes gradually irritated, so that, although some of the pains still occur at irregular intervals, the uterus is really in more action than before, tightly compressing the child, falling into the inequalities of its form, whereby the fœtus is prevented from escaping, every indentation of the uterus forming as it were a ledge past which it is difficult to draw the child, or to pass the hand if we desire to turn. When this condition . . . . has once been fairly established, it is rare that the rhythmical pains ever recur with such force as to expel the fœtus; as a rule, the continuous action remains, and sooner or later symptoms set in telling one of the necessity for interference." What a graphic picture of tonic contraction of the uterus from obstructed labour! It is to Braxton Hicks that we are indebted for a simple and yet certain means whereby to distinguish between these two classes of cases. In the one we find on placing the hand upon the uterus that the uterine walls are lax and flabby, the fœtus being readily felt "within it floating about with ease." So long as this condition lasts we need feel no anxiety, and there is no occasion for manipulative interference. In the other class we find the uterus continuously hard and firm, and tightly moulded to the form of the fœtus, which, contrary to what is found in the former class, cannot be moved about, the whole mass, consisting of the uterus and its contents, being more or less fixed. Under such circumstances we may feel sure that it is worse than useless to postpone assistance. It is impossible to over-estimate the importance of this teaching. There was another matter of equal importance to which Hicks in this paper was the first to call attention, viz. the risk of hæmorrhage from want of response on the part of the uterus if the labour be unduly hastened and the child extracted while the uterine walls are relaxed; that is, when the case is simply one of secondary inertia. On the other hand, when there

is continuous action, extraction is the proper and only safe treatment.

I am glad to know that this invaluable paper is likely soon to be reprinted, along with some other of Braxton Hicks's contributions to obstetrics, by the New Sydenham Society. The lessons it enforces have long since become part of our common stock of knowledge, but it is well to be reminded that we owe them to the exceptional powers of observation of a Fellow of our own Society. I had intended, had time permitted, to give a *résumé* of some other of Braxton Hicks's papers, especially those on the rhythmical contractions of the uterus during pregnancy, to which he was the first to call attention.

In looking through the list of his obstetrical and gynæcological contributions, one feels that there must be few subjects on which he has not written something. There are papers on the anatomy of the human placenta, on the behaviour of the pregnant uterus in chorea, on pregnancy associated with ovarian disease, on the induction of premature labour, on face presentation, on hydatidiform degeneration of the chorion, on transfusion, on rupture of the vagina in labour, on rupture of the uterus, on inversion of the uterus, on concealed accidental hæmorrhage, on the cephalotribe (his modification of which instrument became the one almost exclusively employed in this country), on Cæsarean section, on extra-uterine and intramural gestation, on the temperature during parturition and in the puerperal state, on puerperal diseases, on eclampsia, on labour obstructed by abnormal conditions of the fœtus, on prolapsed funis, on labour with twins, on the best mode of delivering the fœtal head after perforation, on acephalous monsters, and on an outbreak of diphtheria in the obstetric wards. Turning to gynæcological subjects, we find him writing on retention of menses, on uterine polypi, on proliferous cysts of the ovary, on sloughing fibroid of the uterus, on the treatment of malignant disease, on tension of the abdomen, and many other subjects. His series of lectures on some of the diseases of the female urethra and bladder, published in the 'Lancet' in 1867, still remains the best systematic account of these diseases in our

language. He was not a finished writer or an effective speaker. His papers have no charm of style. His sentences are often ill-arranged, and his meaning is occasionally obscure. But his papers are always worth reading, for he was a clinical observer of the first rank, and he never wrote merely for the sake of writing. Sure of his ground, and therefore free from hesitation in his statements of *fact*, he was studiously guarded in his expressions of *opinion*, suggestive rather than dogmatic. In some of his essays, and notably in that on obstructed labour, he showed great originality, and that wide grasp of his subject that enables a man to harmonise apparently discordant phenomena, and to construct out of chaotic materials an orderly presentation of facts and a workable hypothesis in explanation of them. If I were asked which of his contributions I consider to deserve the highest place, I should select the two of which I have endeavoured to give a synopsis this evening, namely, those on obstructed labour and on combined version, and I should add for a third the series of papers on the rhythmical contractions of the uterus during pregnancy. These were all characterised by a rare originality, and are contributions to obstetric knowledge of which the value is likely to be permanent.

It was difficult for those who only knew Braxton Hicks in his later years to realise that this mild-mannered, chatty, beaming little old gentleman was the man whose name was associated with so many advances in the science and art of obstetrics. He was in no sense one of those who either look or talk like a leader of men. But his wide interests, his keen love of nature, and his gentle unassuming manner made him a most interesting companion. He continually displayed a quite unexpected acquaintance with the most out-of-the-way subjects, and his mind was a storehouse of general information. He had read much, observed much, and thought much. He was a good draughtsman, and drew accurately on stone from the microscope. He was a large collector of Wedgwood and oriental china, and had in his house typical examples of different makers. He was fond of architecture, and indeed of art generally. He was a deeply religious man, and a sincere member of the Church of England. He was always ready to

give help to those who needed it, whether in the form of advice or money, or, if necessary, of both; but it was all done so quietly that few knew him for the charitable man he really was. His character had the charm of simplicity. Utterly free himself from all that was base and sordid, he judged others to be the same; hence he never expressed himself unkindly of his fellow men. He died at his residence, the Brackens, Lymington, August 28th, 1897, at the age of seventy-four, from heart failure after a long illness following an attack of influenza. He had retired from the active practice of his profession about three years previously, and had gone back to the home of his childhood, where he settled down to the quiet enjoyment of his garden and his books and the peaceful pleasures of a country life, and where his friends had vainly hoped for him "a long and mellow eventide that the night should linger to disturb."

LIST OF

DR. BRAXTON HICKS'S PUBLISHED WRITINGS

ARRANGED CHRONOLOGICALLY.

I. Medical Papers, &c., with Subject Index.

II. Scientific (Non-Medical) Papers, &c.

I. Medical Papers, &c.

1. Case of ruptured uterus during parturition, *Guy's Hosp. Rep.*, vol. v., 1859, pp. 84-8.

2. Remarks on two cases of extra-uterine fœtation, *ibid.*, vol. vi., 1860, pp. 272-80.

3. On a new method of version in abnormal labour, *Lancet*, July 14th and 21st, 1860, pp. 28-30 and 55.

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AN

ESSAY

ON THE

TREATMENT AND CURE

OF

PULMONARY CONSUMPTION,

ON PRINCIPLES NATURAL, RATIONAL, AND SUCCESSFUL:

WITH SUGGESTIONS FOR AN IMPROVED PLAN OF TREATMENT OF THE DISEASE AMONGST THE LOWER CLASSES OF SOCIETY; AND A RELATION OF SEVERAL SUCCESSIVE CASES RESTORED FROM THE LAST STAGE OF CONSUMPTION TO A GOOD STATE OF HEALTH.

By GEORGE BODINGTON,

SURGEON.

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INTRODUCTION.

In venturing to put forth an Essay on the almost hopeless subject of the treatment and cure of Pulmonary Consumption, which has been so often written upon, and viewed in so many and various ways, and yet is generally felt and considered still to remain *in statu quo*, whilst the wants of the community at large, as regards this particular disease, are greatly on the increase, and the character and power of the medical art, as a curative and remedial means, continues obscured under a dark and cheerless cloud. For these reasons the Author trusts to obtain that forbearance and indulgence from his medical brethren of which he is conscious he so much stands in need of; and that they will deem every effort attended with any success, in this important branch of medicine, of sufficient value to warrant publication, even if the only effect obtained was to draw attention to the subject, excite discussion, promote further efforts, and direct into fresh channels the ideas of others in relation to the treatment of this disease. As regards the causes, origin, and nature of the disease, the work of Sir James Clark, who reaped advantage from the labours of Carswell and other pathologists, is complete and satisfactory. He has, however, failed in directing attention to anything like a decided plan of treatment, either of his own or of any other, contenting himself with some remarks on all the means hitherto known to have been tried, and leaving the matter upon the whole pretty much in the same state he found it; that is, in almost all respects decidedly inefficient and ineffectual. He professes not to interfere with the present theories which govern and direct the practice of medicine, but founds his treatment upon them; and herein I cannot but think the evil exists. The faultiness of the theories of the day is one of the causes of the excessive mortality arising

from Consumption; a scrutinizing search, with a view of investigating their truth or unsoundness, and the adoption of correct principles, must precede a better general system of treatment of this as of many other diseases. In the meantime, those who are able or willing (laying aside preconceived notions, and the prejudices arising from early instruction) to think and observe for themselves may adapt their practice to the real necessities of such a disease as Pulmonary Consumption, probably with advantage to the public and to their own credit; whilst the formation of more perfect theories must await the result of the labours and researches of pathological anatomists, and of experimental physiologists. Sir James Clark rather sarcastically alludes to what he terms the "beef-steak and porter system," which he decidedly condemns, apparently guided by the "phlogistic" theory. I could never recommend porter and beef-steaks to any person suffering from tubercular consumption—not from any preconceived notion of "phlogiston," but on account of its very grossness and unfitness for a consumptive patient. On the other hand, neither could I recommend to such an one, from a prejudice in favour of the aforesaid theory of "phlogiston," a meagre diet of vegetables, rice, and water, aided by tartarized antimony, &c. I should recommend to one thus consuming away, under the influence of this *wasting disease*, a nutritious diet of mild fresh animal and farinaceous food, aided by the stimulus of a proper quantity of wine, having regard to the general state and condition of the patient. If this is to be called the "beef-steak and porter system," then I am guilty of patronizing it; but, to my mind, it rather has the character of a preservative system, whilst the wasting plan is as much entitled to be called the destructive one. Be that as it may, not having the fear of "phlogiston" before my eyes—that "raw head and bloody bones" of medical science—I have, as will be found by a perusal of the following pages, employed a nutritious and moderately stimulating diet with much success; and, without that, I do not think the other means could have been so effectual, or the treatment complete.

I have been brief and concise in drawing up this small volume, preferring rather to form a strong outline than to

enter into tedious detail; besides that, the filling up, in the treatment of individual cases, must always be left to the judgment of the medical attendant, who alone can direct the varieties of practice called for by peculiarities arising from constitutional or other causes.

It will be observed that the main ground of the treatment has been to preserve or restore to a normal condition the functions of the nervous filaments interwoven with the substance of the lungs, and exercising influence over the capillary system and other parts of the organization. It has been assumed that the first link in the chain of morbid actions arises there, as they first feel the irritation from the presence of the morbid matter deposited as a foreign body, and that all the other changes are consecutive to this wasting or destruction of the nervous energy of the filaments with which the tuberculous matter comes in contact. Upon this view the treatment of Pulmonary Consumption in the way herein recommended has been founded.

With the intention of further extending this mode of practice, and of reducing it to a system of regularity and order, as well as to be ready to meet the wishes and hopes of some who may read these few pages, and who might anxiously desire to reap the advantage which this plan promises them, and which some have already obtained to an extent beyond their own or the expectation of their friends, I have taken for the purpose a house in every respect adapted, and near to my own residence, for the reception of patients of this class who may be desirous, or who are recommended, to remove from their homes for the benefit of change of air, &c. It is presumed that, as the situation is very superior in point of dryness, mildness, and purity of air, the advantages to be derived from systematic arrangements with regard to exercise, diet, and general treatment, with the watchfulness daily—nay, almost hourly—over the patient of a medical superintendent, great advantages may be obtained by the consumptive patient treated in this way, in comparison with those to be obtained by the removal of such an one to a boarding-house or hotel merely for change of scene; and it is hoped that this plan may meet the approbation of the medical profession, and

prove beneficial to many afflicted or threatened with the first symptoms of this direful disease in this neighbourhood or elsewhere.

This Essay has no pretension to a complete or perfect work on the subject of which it is composed; much of it is the substance of reminiscences of occurrences which took place several years since; but it has this to be said in its favour with regard to the cases related, that the individuals who were the subjects of them are alive and in good health at the present day, thus showing that the disease will admit not only of palliation, but of cure. Some of those individuals were despaired of by professional men of eminence, who were acquainted with the state of their health previous to their undergoing the treatment under which they recovered; and I know, and their friends know, that opinions adverse to any hope of their recovery were expressed. A larger and more perfect work on the subject may become necessary, as the result of more experience and the collection of more facts may happen to be made. The present Essay has been written in a somewhat hurried manner, when short intervals of time could be snatched from occupations varied and almost incessant. Hence, as a literary composition, its imperfections are very great; but, as the aim has been to give the pith and substance of the matter treated on, it is hoped this fault may be passed over.

Sutton Coldfield, Warwickshire:
January, 1840.

ON THE

TREATMENT AND CURE OF PULMONARY CONSUMPTION.

A uniform and complete success having resulted in the treatment of several cases of tuberculous Consumption upon the principles and plan explained in the following pages, the author deems it his duty to publish them, with his opinions and principles of treatment. It would not accord with the brevity and conciseness of the plan of this treatise to enter at length into the nature and causes of Consumption, the diagnostic symptoms, physical signs, morbid anatomy, &c.; these are subjects which have been elaborately handled by several eminent authors, whilst little has yet been done by way of improvement in the treatment of the disease. Consumptive patients are still lost as heretofore; they are considered hopeless and desperate cases by most practitioners, and the treatment commonly is conducted upon such an inefficient plan as scarcely to retard the fatal catastrophe. One mode of treatment prevailing consists in shutting the patients up in a close room, to exclude as far as possible the access of the atmospheric air, and thus forcing them to breathe over and over again the same foul air contaminated with the diseased effluvia of their own persons. But what could rationally be expected to be the result from such practice than that of the conversion of a slow or moderate consumption into an intense or galloping one? This is, indeed, a treatment founded on the most erroneous principles, and is much more deserving of reprobation than is even the apathetic indifference and desperate hopelessness generally entertained with regard to this disease.

To aid the powers of the close room system, tartarized antimony is often given in excessive doses, and generally with the effect of nearly destroying the patient. It materially assists the disease in destroying the powers of nutrition, the muscular power, and the functions of the skin, at the same time increasing the nervous excitement. Patients seldom survive long the use of this medicine, when administered freely, if the disease is much advanced, unless an antidote to the poison be timely given. I have never seen anything but mischief arise from the use of it; it is entirely inconsistent with the method and the principles upon which I have successfully treated the disease. It is, however, at the present time, a fashionable medicine, and, I may add, a most destructive one. I am quite sure that the employment of this remedy (?) hastens the fatal event.

Digitalis is another drug that has been vaunted as a remedy for consumption. It has the power of controlling the action of the heart, and diminishing the number of its beats; therefore, it has been argued, it must or ought to be serviceable in this disease. It is perfectly well known that it entirely fails even in retarding the progress of consumption; it has no power to cure that disease; and I shall be able to show clearly that the diminution and regularity of action in the heart and arteries is to be attained by far different means than by the use of digitalis.

I believe, having mentioned the shutting up plan in close rooms, the use of antimony and digitalis, if I add the use of demulcents, of blisters, leeches, plasters, &c., I shall have described the helpless and meagre system of medical treatment of consumption in general use at the present day, the utter uselessness of which is so well known and so obvious that the members of the medical profession in the towns are in the habit of dismissing their patients to some distant seaport or watering-place, where, falling under precisely the same mode of treatment, they there commonly die. The gravestones in the churchyards of many of these places of resort of the consumptive patients bear testimony to the truth of this remark. There is nothing gained by resorting to the coast; in truth, the interior of the island is the best; the air is just as pure

and much milder, and more suitable for the lungs of consumptive people, if they will but breathe it. There is but one other proposition in the way of treatment to which I have to allude—I mean to the inhalation of gases of various kinds, by which means it is proposed to convert the cough of consumption into a catarrhal cough, which catarrh is to continue so long as the patient lives, or, discontinuing, the consumption would supervene. We have not heard what success has attended this method of treatment, but it may be fairly inferred that such an artificial mode of proceeding, so contrary to the dictates of common sense and sound principles, could not sustain itself for long, and must have perished nearly at its birth. The only gas fit for the lungs is the pure atmosphere freely administered, without fear; its privation is the most constant and frequent cause of the progress of the disease. To live in and breathe freely the open air, without being deterred by the wind or weather, is one important and essential remedy in arresting its progress—one about which there appears to have generally prevailed a groundless alarm lest the consumptive patient should take cold. Thus one of the essential measures necessary for the cure of this fatal disease is neglected, from the fear of suffering or incurring another disease of trifling import. No two diseases can be more distinct from each other than consumption and catarrh. It is the latter only which might be caught by exposure to atmospheric causes; with the former they have nothing to do. Farmers, shepherds, ploughmen, &c., are rarely liable to consumption, living constantly in the open air; whilst the inhabitants of the towns, and persons living much in close rooms, or whose occupations confine them many hours within doors, are its victims. The habits of these latter ought, in the treatment of the disease, to be made to resemble as much as possible those of the former class, as respects air and exercise, in order to effect a cure. How little does the plan of shutting up the patients in close rooms accord with this simple and obvious principle! As to the result of such a practice, it is known to all; one-fifth of the deaths annually in England are from consumption, whilst cures are scarcely ever heard of, and never expected. Despair seems to have

taken full possession of the medical profession as regards this destructive disease, and none but the feeblest efforts are exerted to oppose its progress. The successful treatment of several cases successively of severe, decided, and genuine tubercular consumption on principles, I believe, differing from the usual routine of practice, and from the doctrines and theories of the present day, which form the basis of medical practice, induces me to lay those cases before the public, and to explain my views and principles of treatment on which that success was founded.

When I began to practice medicine as an art, after having imbibed the theories of the schools, I very soon found the necessity of laying them aside as a guide, having discovered, as I believed, that the practice founded thereon was useful to a certain extent only, and, as far as that went, fit to be employed; but that it was worse than useless, when employed like a talismanic wand, to unlock and overcome every difficulty that might present itself. Thus I found that it was for the most part useful to preserve as much as possible, in very many diseases, the muscular power, contractility; but that antiphlogistic treatment, as it is called, had a direct tendency to destroy it. Again: To preserve the powers of nutrition, I have found needful and beneficial always when they can be maintained; for disease makes a slower progress when opposed by a firm muscular tone and good nutritive powers. Antiphlogistic treatment directly impairs and destroys the powers of nutrition. Again: In order to oppose the progress of disease, I have found it of paramount importance to allay nervous excitement locally and generally; that is, to endeavour to bring to a healthy action the nervous influence from that morbid, irregular, or inefficient action which it exerts under the influence of disease. If the nervous system can be preserved entire, disease will be overcome, and healthy actions be maintained. If disordered nervous actions are restored to a healthy state, the functions of all the lower tissues dependent upon them will resume a healthy condition; for this purpose Nature has provided man with a bountiful supply of remedies, in the whole class of sedative and anodyne plants. In the proper use and application of these medicines is to be

found the means of restoring disordered nervous power to a healthy standard. I shall have to show by and by their important use in the treatment of consumption. Antiphlogistic treatment, carried out exclusively in the usual way, and in accordance with the doctrines of the schools, has a tendency to excite and irritate the nervous system, and to weaken its powers over those tissues which rank below it in the scale of animal life; consequently it has a tendency to destroy every natural bulwark to the progress of morbid actions.

If consumption is considered in this light, we shall find the first step of its progress consists in nervous irritation, or altered action, or weakened power, in the substance of the lungs, from the presence of tuberculous matter deposited there as a foreign body. In consequence of this condition of the nervous power the contractility of the lungs becomes impaired in its membranes, cellular substance, and blood-vessels. So soon as the nervous power is entirely destroyed in those portions of the lungs where the tuberculous deposits exist, then the destruction of the remaining tissues follows immediately; they die, dissolve down into a half-fluid, half-putrid condition, and are expectorated through the bronchial tubes, leaving cavities in the substance of the lungs which can be never healed but under the most favourable combination of circumstances. Here is then, first, nervous power altered, weakened, or exhausted; then the destruction of the remaining tissues constituting the main substance of the organ. To preserve the latter the integrity and strength of the former must be maintained; and upon the means necessary for that purpose the whole question turns. I shall endeavour to explain those I have employed successfully in a plain, distinct, and intelligible way to all classes of readers; for not only the medical profession, but every family is interested, and ought to be made acquainted with the means of guarding off this fearful malady, and of rescuing its victims, wherever it makes an attack.

Those persons who are for the most part the freest from the attacks of consumption, such as agricultural labourers, are commonly but little troubled with nervous disorder; they are rather remarkable for an apparent obtuseness of nervous

susceptibility, and this is in strict keeping with fully developed muscular, nutrient, and sanguiferous powers. This nervous quietude harmonises exactly with this condition of the latter powers; it is a plain inference that, to guard against the attacks of consumption, the condition of the patients should be assimilated as much as possible to that of the above-named class of individuals. The nutrient, muscular, and sanguiferous systems must be maintained in the highest perfection that is possible; the nervous system quieted, subdued, and rendered obtuse. The relation of the cases I have treated successfully will best show the means of effecting these objects. By a subdued and healthy condition of nervous power, and by a full and complete condition of health as regards the nutrient system, &c., the nervous system of the substance of the lungs, those nervous fibres immediately acted upon by the tuberculous deposits, will not yield to their influence. Tuberculous matter is often found deposited upon sound lungs, where it has been rendered harmless by a vigorous state of nutrition and the sanguiferous system; but let individuals thus affected be exposed to the causes of innutrition, and there are but too many, by which the muscular and sanguiferous systems lose their tone and become weakened, and you have removed the barriers to the progress of consumption; the nerves of the lungs are no longer able to resist the morbid impression from the presence of the tuberculous matter, their energy becomes exhausted, ulcerations and excavation of the substance of the lungs follow, constituting consumption.

In order then to restore a consumptive patient, it will be necessary especially to attend to the following matters. We shall find first of all a rapid and weak pulse, ranging from 120 to 140 beats in a minute, clearly indicating a deficient supply of blood, and the heart and arteries irritable in proportion to this deficiency. This condition must be met at once, not by the means termed "antiphlogistic," but with frequent supplies, in moderate quantities, of nourishing diet and wine; a glass of good sherry or madeira in the forenoon, with an egg, another glass of wine after dinner, fresh meat for dinner, some nourishing food for supper, such as sago, or boiled milk, according to the taste and digestive powers of

the patient. This will be supplying means to rectify the morbid condition of the nutritive functions, and to allay the irritability of the heart and arteries. I have generally succeeded in the course of a few days, or perhaps a week, in reducing the pulse from 130 or 140 down to 90, by means of this diet, and by a systematic use of sedative medicines, and other means. The whole nervous system is unduly excited, or affected in some way we know not how to express or understand, from our limited knowledge of it, when under the influence of this disease, and neither can nutrition be affected, or the muscular system recover strength, or the vessels be filled with a due supply of the vital fluid, unless that nervous disorder be allayed and soothed, or rendered more in accordance with a healthy condition. The plan to obtain this object is to give alterative doses of sedatives, and also direct or full ones. The former consist of moderate doses given at intervals throughout the day, with the view of allaying the general nervous excitement. The direct or full dose is given at bed-time, to allay coughing and procure sleep. Aconite, henbane, or the salts of morphia may be used. I have preferred generally the hydrochlorate of morphine: a sufficient dose to procure a whole night's repose should be given every night, in addition to the alterative doses above mentioned; the latter may be administered, in an almond emulsion, in doses repeated three or four times a day. Should the medicine produce constitutional effects, paleness, faintness, sickness, giddiness, it must be laid aside for a period, and an antidote will be found in small quantities of weak brandy and water, or wine and water. The sedative medicines should be resumed so soon as these effects are removed.

I come now to the most important remedial agent in the cure of consumption, that of the free use of a pure atmosphere; not the impure air of a close room, or even that of the house generally, but the air out of doors, early in the morning, either by riding or walking; the latter when the patients are able, but generally they are unable to continue sufficiently long in the open air on foot, therefore riding or carriage exercise should be employed for several hours daily, with intervals of walking as much as the strength will allow of,

gradually increasing the length of the walk until it can be maintained easily several hours every day. The abode of the patient should be in an airy house in the country; if on an eminence the better. The neighbourhood chosen should be dry and high; the soil, generally of a light loam, a sandy or gravelly bottom; the atmosphere is in such situations comparatively free from fogs and dampness. The patient ought never to be deterred by the state of the weather from exercise in the open air; if wet and rainy, a covered vehicle should be employed, with open windows. The cold is never too severe for the consumptive patient in this climate; the cooler the air which passes into the lungs, the greater will be the benefit the patient will derive. Sharp frosty days in the winter season are most favourable. The application of cold pure air to the interior surface of the lungs is the most powerful sedative that can be applied, and does more to promote the healing and closing of cavities and ulcers of the lungs than any other means that can be employed; for it is by the use of the means which have the power of restoring to a healthy condition the nervous system, interwoven with and forming a portion of the substance of the lungs, that healthy actions can be induced in the remaining tissues. This, then, is to be aimed at,—a healthy nervous system, which will embrace in its consequences, due sensibility, motive power, nutritive and reparative power,—conditions necessary to resist and overcome the morbid influence arising from the presence of tuberculous matter. Many persons are alarmed and deterred from taking much exercise in the open air, from the circumstance of their coughing much on their first emerging from the warm room of a house; but this shows that the air of the room was too warm, not that the common atmosphere was too cold. To live in a temperature nearly equal to the latter at all times should be the aim of the patient, who should avoid warm close rooms as much as possible, and always keep away from the fire, taking care to keep the surface of the body warm by sufficient clothing. Thus the equal temperature so much considered, and said to be necessary, should be that of the external air, instead of that so commonly employed, the warmth of a close room.

In order effectually to overcome consumptive disease, all these several circumstances will be required to be adopted and followed up with the greatest attention, regularity, assiduity, and patience. Of those cases which I have treated upon these principles, having had some of the patients under my own roof, by which I secured all the advantages of situation, &c., before spoken of, and some in my immediate neighbourhood, so that I could closely watch them, I have met with signal success, and scarcely an instance in which this mode of treatment has been fully carried out in all its particulars wherein the consumptive symptoms have not gradually yielded, and the patients restored to complete health. I shall now proceed to give an outline of the history of the treatment of several cases.

One occurred in the person of an awl-blade grinder, living in the country, in the year 1833. He was of a consumptive family; a sister of his had died at about the age of twenty years, and others of his nearest relatives had died from the same disease. There could be no stronger exciting cause for the development of the disease than that which arose from his daily occupation; he was about thirty years of age, of fair complexion, florid, shoulders high, chest narrow, and his general figure rather spare and slender. His finger nails were incurvated; he was troubled with a pain in his side; and a cough more or less without intermission. It was upon the accession of a sudden attack of consumption that I was called in to attend. A feeling of suffocation affected him, which was distressing, arising from the pressure of an abscess in the bronchial passages, attended with irritative fever; the breathing was relieved by the bursting of the abscess, and the free expectoration of pus and mucus. A cavity was formed in the upper portion of the substance of the lungs; the pulse beat 140 in a minute; he had profuse night perspirations; and his respiration was exceedingly quickened. He was much exhausted, and fully impressed with a belief that his life was about to terminate. He had no inclination for food of any kind; his muscles were relaxed and powerless, and his whole frame collapsed. Under these circumstances, had the anti-

phlogistic treatment, or even any part of it, been adopted, I believe he would have sunk past recovery; and yet would not this be called acute inflammation of the substance of the lungs? and are not the remedies for this said to be, bleeding, blisters, calomel, antimony, digitalis, purgatives, &c.? But any of these, I firmly believe, would have hazarded his existence; the application of the antiphlogistic routine would have destroyed him. The treatment adopted was this. Seeing that nutrition was at a stand-still, that the muscular power was collapsed, and the sanguiferous system running away, at the rate of 140 beats per minute: to counteract these dangerous symptoms, he took, first, a wine glass of port wine, and repeated it in a few hours; at bed-time he took a sedative draught, and slept well; he continued to cough, and expectorated freely pus and mucus; he took at intervals small doses of hydrochlor. morph., about a tenth of a grain; this, and the full dose he had taken on the previous night, allayed, in a great degree, the nervous excitement in the lungs, and the irritative fever subsided; but the cough, debility, and expectoration continued; there was a cavity of the lungs to be healed. I told him *that* could not be done without a strenuous effort on his part; and explained to him my views as to the beneficial effects to be obtained by early rising, and remaining out of doors a considerable time in the open air; that this would soothe, expand, and invigorate the lungs, so that the sores would soon heal, and that by no other means could he be cured: that if he remained within doors, shut up in the house, more abscesses would be likely to form, and the irritative fever again attack him. He saw the force of this advice, and determined to follow it, being a man of much firmness of character. All this occurred on the second day after the acute attack. On the next day following he related to me, nearly in these words, the particulars of his morning walk: "I got up about four o'clock, and crawled out of the house as well as I could, and felt, and, I believe, looked, the most miserable, weak, and pitiable wretch in the world. I crept along, panting for breath, towards the common; I thought I must have died on the road; at last I reached Welchman's Hill, and when I began to walk round it I felt my lungs open,

my breathing free, and my strength increase fast. I was now sure it was doing me good; I went quite round the hill, and then home, and was so hungry that I ordered a beefsteak for breakfast, and ate heartily of it." The distance he walked would be about three miles. The spot called Welchman's Hill is said to be equal in elevation to any table-land in the island. The soil lying on a sandy or gravelly bottom, the air is very pure and mild. He continued for some time daily to pursue the same course, and became convalescent in a week, losing his cough entirely. I wished him to change his employment, but his circumstances forbade that. He resumed, after a short interval of rest, his trade of an awl-blade grinder, and continues it to this time He has had symptoms of a return of his disorder on several occasions since, and informs me that, when that is the case, he betakes himself early in the morning to the common, and that always prevents any serious attack. The cure in this case was obtained by means applied to stimulate and invigorate the nutritive, sanguiferous, and muscular powers; wine and such nourishing diet as the stomach could bear, and by means applied to soothe and allay nervous excitement, locally and generally; first, by a full dose at night of the muriate of morphine, followed by small alterative doses given every five or six hours; secondly, by the application of the early morning air to the internal surface of the lungs, continued for several hours, accompanied with muscular exertion. The change in the character of the expectorated matter is very striking. As soon as the full effects of the morning air are experienced, it becomes light, white, more transparent, and devoid of puriform matter; it has more of the nature of mucus, and is no longer heavy, yellow, and solid. So powerfully does this remedy effect the lungs as a sedative, allaying and subduing nervous disturbance, at the same time inducing a vigorous tone of the digestive apparatus, and of the nutrient functions generally, that it will, if boldly and thoroughly applied, directly and entirely change the character of the cough, and completely remove the wasting irritative fever.

The next opportunity I had of witnessing the advantages of the mode of treatment described occurred in the case of a

young lady, about sixteen years of age, whose parents, brothers, and sisters were all at this time healthy generally; consumption was not known in the family previous to her case, but at the present time her brother suffers from the disease. For several years she had suffered occasionally from pain in the side, cough, and debility. In 1835 she returned home from a boarding-school, where she had been placed under medical treatment for these complaints; she was still ill, and her friends thought it advisable she should go to the sea-coast. She went near to Liverpool; the sea-air had a bad effect, the pain and cough increased; she was placed under medical care, and went through a long course of treatment. She continued to get worse in every respect, and her friends saw the necessity of her removal home; and she came to her native air in Warwickshire in October, 1835, after an absence of several months. Her friends were impressed with a notion that the iodine which she had been taking, if persevered with, would be ultimately successful. This very interesting patient came under my care. Her parents, relatives, and numerous friends were watching her with the deepest solicitude; for she was, by all who knew her, most highly and justly esteemed. I found it necessary, at least for a short time, to acquiesce in the treatment by iodine, although there was but little hope of any advantage from it. I met several medical men in consultation, and a treatment was pursued in the usual manner; the patient being confined to her room, and consumption gradually wearing her away. I had explained my views to her friends respecting air and exercise out of doors, but could not succeed in gaining their consent to the plan. The two months of November and December were thus lost to the patient, or, rather, during that period every symptom of the disease had become aggravated; she was now extremely emaciated, suffered from profuse night perspiration, violent cough, and difficulty of breathing; the expectoration was abundant, consisting of mucus, mixed with opaque solid portions frequently tinged with blood, most of which sank in water, some floated. There was a dull sound on percussion of the upper portion of the lungs, mucous rattle, with a gurgling

noise, and a hoarseness, and weakness of voice; the physical signs, in combination with the general symptoms, were clearly indicative of the existence of cavities in the upper portion of the lungs. In the month of January, 1836, the case was left entirely to my management; and, having urged my views strongly to her friends, I gained their consent to their being adopted. A donkey was procured, on which the patient began to take exercise out of doors, notwithstanding the inclemency of the season, in the depth of winter. The first trial was unpromising; the cough appearing to be much increased in coming into the open air from the warm bedroom. This arose from the undue closeness and heat of the bedroom, and not the external air. There cannot be a more fatal error than that which arises from the supposition of there being something deleterious in the external atmosphere, because persons cough when first brought into it out of unwholesome heated apartments. The latter should be especially avoided, and the apartments kept cool and airy, corresponding in temperature nearly to the external atmosphere, whilst the former should be courted and indulged in to the utmost. The surface of the body may and should always be kept warm by sufficient clothing, the lungs cool by the constant access of cold pure air to them; thus undue heat is driven from the interior to the surface. In the present instance it was soon found that by continuing a long time out of doors the cough abated materially; every day some improvement was observed to take place, very gradual, but constant. A sedative draught was given every night, which, together with the exercise of the day, procured sleep and warded off the cough till morning. In the daytime an emulsion mixture was taken at intervals, and very small doses of morphine, to subdue by degrees the irritation arising from the presence of tubercles in the lungs. The diet was nourishing, consisting of boiled egg, fresh meat, milk and bread, and two glasses of sherry in water daily. This treatment was continued very strictly through the winter and spring months of the year 1836; by June the patient had entirely lost her cough, with all the other symptoms of the disease, regained her health and strength, and passed through the succeeding winter in very good health, accustoming herself

to go out of doors, walking or riding almost daily. At this time, July 1839, she is in perfect health.

Nov. 14, 1836.—A young lady about twenty-three years of age, residing at Birmingham, of a consumptive family. Two sisters and a brother died of the disease. She had been suffering several months from cough, pain in the side, emaciation, difficulty of breathing, and a pulse 140; she had all the usual symptoms of consumption in its last stage. In this condition she was placed under my roof, for the purpose of undergoing a treatment similar to that last detailed. As her brother had recently so died, and other members of her family, and her symptoms in all respects resembled theirs, her fate was thought inevitable by her friends; she was therefore brought to me as a forlorn hope. She came on the 14th of November. On the 15th she was called up at eight o'clock, a.m., after a bad night of incessant coughing. After breakfasting with what appetite she had, she got into an open phaeton, and was driven four miles. She coughed at first, but in ten minutes it ceased; she alighted at a house and went into a warm sitting-room, where the cough returned immediately; after a short stay she returned home, and on the road the cough nearly ceased to trouble her. She took a little wine and water at eleven a.m., and at two p.m. dined on fresh mutton. In the afternoon, rode out on the donkey some time; retired to bed at eight o'clock, taking an anodyne draught of morphine. She slept well, and on the 16th rose at half-past seven. After breakfast she rode out on a donkey and walked alternately till one o'clock. After dinner, drove out in the phaeton four miles and back. Coughed rather more this afternoon; pulse, 120; appetite moderate; an anodyne draught at bedtime.

17*th.*—Cough continues; the strength improves; out of doors morning and afternoon, riding and walking; anodyne draught at bedtime.

25*th.*—Has been gradually improving since the 17th; has been out of doors every day, sometimes walking, at others riding in the phaeton; sleeps well, the cough being troublesome only at rising in the morning; coughs but little when

exercising out of doors; takes an almond mixture in the daytime, anodyne draught every night.

29*th*.—The weather very stormy, the rain falling in torrents; notwithstanding which, at intervals when the rain ceased, the patient walked in the garden, morning and afternoon. Had a severe coughing fit last night; has scarcely coughed at all to-day. Eats moderately of plain animal and farinaceous food; drinks a small glass of sherry wine in water daily after dinner; the anodyne draught at bedtime, and almond emulsion occasionally. Her health altogether is greatly improved.

Dec. 24*th*.—The same treatment continued steadily up to this day, when she was considered well, and went home to Birmingham. She had taken exercise out of doors every day in some form or other; now her appetite is very good; breathing, free and easy; pulse, strong, firm, and not too quick; sleeps well, the cough seldom troubling her in the night, and quite absent in the daytime; she is active and strong, and regaining flesh fast; eats pork-pie for breakfast and supper with advantage, drinks sherry and water after dinner.

She remained at home comparatively well until she caught the influenza, which prevailed as an epidemic in the months of January and February, 1837. The disease ran through the family, and none suffered so severely as my patient. I had not the management of her under this attack, until, whether from the effects of the disease, or from the active and debilitating treatment employed, or both, she lost all the advantage she had obtained when under my care, the whole train of consumptive symptoms returned with greater severity than before. The debility was so great that she could not support herself, and, after a consultation with her mother, I arranged once more to receive her under my roof. She was conveyed in a car to my house, a few miles from Birmingham. The same plan of treatment was immediately followed which had before proved so beneficial, and, in the space of three weeks or a month, she again recovered, and, with the occasional use of anodyne draughts, has remained tolerably well up to the present period.

May 16th, 1839.—S. R., a married man, about thirty years of age, lives in service at — L.'s, Esq., Handsworth, near Birmingham. A few months since had an attack of hæmoptysis; since then has been subject to cough; the cough is become permanent, incessant night and day; expectoration free; breathing short, especially on taking exercise; sharp pains through the chest, on right side; great debility, and wasting of the body; excessive perspirations in the night; pulse 120; the tongue clean; eyes have a glassy expression, pupils dilated; complexion florid and fair; stature tall; chest rather narrow. His father died at six and twenty, of consumption. In addition to these symptoms, percussion afforded a dull sound on the upper part of the chest; auscultation discovered mucous rhoncus, with gurgling, on coughing. There was an excavation in the upper portion of the right lung, accompanied with all the usual symptoms.

Treatment.—The nervous excitement was combated by daily small doses of mur. morphinæ; by the frequent application of cool air to the surface of the lungs, by walking or riding out, beginning at five or six o'clock in the morning. The wasting, innutrition, and muscular debility, and the accelerated pulse, clearly indicated the necessity of two glasses of wine daily, an egg at eleven o'clock p.m., fresh meat for dinner, tea in the afternoon, and gruel for supper. He took a dose of almond emulsion three times a day; slept on a flock bed; and used tepid sponging with vinegar and water every night, whilst he had profuse perspirations; bed-clothes light.

May 18th.—Improved; cough diminished; slept well last night; pulse 80, softer, fuller; breathing more free; stronger; expression of countenance much improved; rode on horseback six miles; continue treatment as before.

21st.—Rode on horseback; rose at half-past five; walked out for an hour, to the farm-house near, drank a little new milk; improving; sleeps well; appetite better; pulse 80; cough much diminished; breathing more free; no night perspirations; omit the sponging; continue treatment as before.

24th.—He walked this morning four miles; pulse 86; cough nearly gone; appetite good.

27*th*.—Continues improving.

30*th*.—Walked again four miles without feeling fatigued; sleeps well; coughs at first rising in the morning; after discharging mucus, remains free from the cough till the afternoon, when he has another fit of it; strength increasing daily.

June 1*st*.—Is well, with the exception of a slight cough, and expectoration of mucus, on rising in the morning; wishes to be allowed to return to work, as a groom, gardener, &c.

8*th*.—Walked four miles again, feeling no fatigue; coughs occasionally in the morning; appetite good; breathes with freedom.

11*th*.—Has resumed his daily occupations; his strength being restored, wine no longer needful; appetite good; digestion easy; drinks toast and water.

18*th*.—Called at the surgery; quite recovered.

A young man about nineteen years of age, after having a year before suffered from hæmoptysis severely, and subsequently from slighter attacks of that disease from time to time, became the subject of a very severe hypochondriacal affection, which, in the month of August, 1839, terminated in the development of tubercular consumption, characterised by frequent cough and expectoration of mucus and pus, or matter of an ashy colour, sinking in water; by nocturnal profuse perspirations, shortness of breathing, emaciation and great debility; pulse ranging from 130 to 150 beats in a minute; respiratory murmur, almost imperceptible; percussion over the clavicles gave a dull sound; internal resonance of the voice and cough on right side; the whole symptoms physical and natural clearly demonstrating the existence of ulceration and excavation of a portion of the lungs, constituting the last stage of consumption.

Treatment.—Aug. 6*th*, 1839.—Takes a glass of new milk before breakfast; rises at six a.m., and walks in the garden; breakfast, tea and toast; rides out afterwards; lunch, milk and toast; dinner, fresh meat and bread; three glasses of sherry wine daily, at eleven a.m., at two p.m., and at seven p.m.; afternoon, exercise in the open air, riding or walking;

retires to bed at eight; takes an anodyne draught of mur. morphinæ; pulse 130.

8*th*.—Milk diet disagreeing with the stomach, takes beef-tea, sago, fresh meat; sherry wine and water after dinner and in the evening; eight p.m., much relieved by the omission of milk in the diet; pulse 120, fuller and softer; cough, expectoration, and night perspirations continue; repeat anodyne draught at bedtime.

Sept. 3*rd*.—Patient continues under treatment, pursuing in all respects the plan daily as above, namely, three or four glasses of wine daily, with a good supply of fresh animal food, sedatives, demulcents, early rising, and going daily out of doors, when the weather permits, and when at home sitting for the most part with the window wide open, and without a fire, except occasionally in the evening; under this treatment the disease appears arrested in its progress; there is improvement as regards the cough, the quantity of expectoration, and the night perspirations, but the pulse continues to beat from 120 to 130 in a minute; and when at all excited even 140. This is the most difficult case I have hitherto encountered, and the most doubtful as to its favourable termination, arising from the complication of morbid affections the patient has been subject of, namely, of hæmoptysis, hypochondriasis, and a few years since of a fistula in ano, some effects of which he still suffers from; but I purpose to publish, if I have opportunity, a faithful account of the result of this, and of every case of this description which I may happen to have the opportunity of treating, upon the principles herein described, on a future occasion.

One case more—which I shall describe from reminiscence, having no notes of it—will show the applicability of the treatment to acute consumption. About two years ago I was desired to see Mrs. L., the wife of a tradesman, about thirty years of age, tall in person, and of fair and florid complexion. She was lying in bed, in extreme agony from difficulty of breathing, arising from an internal tumour which she described she felt pressing upon the lower part of the throat. She was pale, and bathed in perspiration, large drops hanging about her

forehead and face. The pulse was exceedingly quick and small, and the breathing terribly oppressed. Eight or ten leeches were quickly applied to the lower part of the neck, just above the sternum; and shortly after their application her mouth suddenly became filled with matter of a purulent character, which she ejected; the breathing became free, cough and expectoration remaining. She took a sedative draught at night, and slept well. In the morning the cough returned, and the expectoration was great, consisting of mucus and pus mingled. The irritative fever had greatly declined. A large bronchial abscess had been the cause of the symptoms, and its bursting afforded the relief which the patient felt. The question now was, as to the best means of healing the cavity, and preventing the acute attack degenerating into chronic consumption. The means employed were these. As she had been much exhausted, she was directed now to take occasionally a little wine and water, good beef-tea, sago, &c.; sedatives were given her in small doses, and a full dose at bedtime. She was advised immediately to quit the bedroom, and go into the open air as much as possible, that she might obtain the benefit of the soothing and sedative properties of cool air applied to the inner surface of the lungs, being well clothed and guarded from wet and damp. She strictly followed this advice; and in one week's time I met her driving several miles from home, and heard her express very cheerfully that she considered herself quite well. Her general appearance and expression was decidedly of that character which is indicative of a tuberculous habit; and the bronchial abscess was probably the result of tuberculous deposit, and the case altogether a specimen of the acute form of consumption.

The method of treatment in the foregoing cases is, then, I think, entitled to be called natural and rational; that it is successful is obvious, each of the individuals thus treated, except the last but one, still under treatment, has remained since their cure in good and comfortable health, and they have obtained this advantage, that they now know themselves so well the best means of cure, and they employ those means

effectually to ward off any fresh attack. Several years have elapsed since the restoration to health of the two young ladies, and they neither of them have since suffered seriously from any disease of the lungs. They go as much as they can into the open air, walk much, live well, and avoid every source of bodily debility as much as possible, especially that which might arise from the imprudent use of that kind of medical treatment which goes by the term of "antiphlogistic," well knowing that if they should sink below a certain degree of vigour and health from this cause, or any other, consumption would immediately make inroads upon their constitutions, and endanger their existence.

The generality of the medical profession have not the opportunity of thus treating their consumptive patients; if they are to succeed, they should have country houses in proper situations, well ventilated, and provided with all "appliances and means to boot," where their patients should be under their own eyes, and strictly watched and regulated in all respects as regards exercise, air, diet, medicine, &c.; or, there should be a certain class of practitioners who should exclusively pursue this practice as a distinct branch, to whom those in the large towns should confide their consumptive patients, instead of sending them, as many now do, to take their chance, or probably to fall into the hands of mercenaries at some distant sea-port, where they commonly die, far away from friends and home.

With respect to the consumptive poor patients, those who cannot afford to pay for a proper treatment of this sort, hospitals should be established in the vicinity of large towns, in fit situations, and properly appointed in all respects for their reception and treatment. In these there should be provision made for affording them carriage or horse exercise; and gardening and farming occupations for the convalescent. The common hospital in a large town is the most unfit place imaginable for consumptive patients, and the treatment generally employed there very inefficient, arising from the inadequacy of the means at command.

With respect to the grinders at Sheffield, who, from the destructive effects of consumption amongst them, arising

from the inhalation of the metallic and stone dust, do not live beyond the age of thirty years, the necessity for a hospital for their exclusive use and treatment is most urgent, on the score of common humanity and justice. These individuals actually throw away half the term of their natural life in the pursuit of an occupation by the results of which the rest of mankind may feed themselves delicately. As the immediate cause of the development of consumptive disease in these individuals is obvious, their removal from its influence, and early treatment under a combination of favourable circumstances in a hospital properly chosen for them, and well conducted, would most likely be productive of a great extension of the present average term of their lives.

Connected with such a hospital, provision should be made for the employment of the convalescent and cured patients, who ought never to return to their former occupation, but should be employed after as agricultural labourers, gardeners, or in any other pursuit, rather than return to their former occupation.

One-fourth of the deaths which occur in Birmingham, Manchester, and other large towns are from consumption; and if ever there was a necessity for an effort to arrest an evil of extraordinary magnitude, that necessity is urgent in regard to this most fatal of all diseases.

I have learned by experience that the surest way in which a successful treatment can be arrived at by the medical man is by the reception under his own roof of the consumptive patient; at the same time his house should be in the country, in a situation airy and dry; he should have every means about him for the proper exercise of the patient, in a carriage, on horseback, or a donkey, according to the ability and taste of the invalid; a swing boat is a good exercise, and one which I have employed with much advantage. The bedroom should be cool and airy, and properly ventilated; everything relating to the patient's health should be strictly watched and regulated by the practitioner; above all, in the medical treatment, there should be no bias in the mind arising out of the theory prevalent in the schools, and in medical practice, and termed "phlogiston," giving rise to a treatment called "antiphlogistic."

I have called the treatment herein adopted, natural; and not exactly in accordance with the received and adopted theory of inflammation, but in accordance with the natural phenomena presenting themselves to observation; thus, the whole structure being viewed as composed of so many parts, the several parts differing from each other in function and structure, the question presents itself,—How would each be affected by the presence of a particular morbid affection? as, for instance, a deposition of tuberculous matter;—taking, first, the higher order of organisation, the nervous filaments, spread out on the organ thus affected, we should infer that their power would be so affected by the presence of the foreign body as to be wasted or lost; so that, by diminished power, they could no longer control and preserve in healthy action the blood-vessels, cellular tissue, and other portions of the common organization; and as this action of the deposited matter would occur upon the extremities of the nerves, the capillary vessels would be affected by the loss of nervous power, and losing, in consequence, their contractility, or some portion of it, become dilated, swollen, and congested; and then would follow the usual phenomena, commonly called inflammation, terminating in suppuration or ulceration; that is, these vessels, losing the aid of nervous influence, are no longer able perfectly to perform the office of hydraulic tubes, carrying a fluid containing solid particles in solution—the blood; hence congestion, obstruction, and collection of the solid parts of the blood in these vessels takes place, terminating in abscess, ulceration, gangrene, or re-solution. The principles of treatment I have ever found most suitable for the removal of this diseased action are founded neither exclusively on the doctrines of Brown nor on the theory of inflammation; the truth, as far as my experience goes, lies between the two; as regards the condition of the nerves of an organ, and the supply of nervous energy, the reigning power, and governing principle, without a due supply of which healthy actions in the lower grades of organization cannot be maintained; it depends mainly upon a healthy and vigorous state of the nutritive organs, by which the sensorium is supplied with the nourishing fluid, and maintained in vigour. As far as

this system, then, is concerned, the Brunonian theory, and the treatment founded thereon, is the correct one; as regards the dilated, loaded, and distended capillaries, with the heat, and congestion, and deposition of the solid parts of the blood, the treatment founded on the theory of inflammation is the most serviceable; hence, local bleeding, by leeches or cupping, may be useful and necessary to relieve congestion of the blood-vessels in pulmonary consumption; but this is not inconsistent with the steady employment of means for the purpose of maintaining the integrity and perfection of the sensorial functions, and of the whole nervous system, on which, in fact, will at last depend the chances of a permanent cure; and for this object it will be necessary to stimulate and preserve in due force the natural powers of the system, by the stimulus of wine and generous diet; and to prevent any undue exhaustion of nervous energy, by the exhibition of anodyne and sedative medicines upon a regular and systematic plan; and by the avoidance of all common causes of nervous exhaustion and debility, especially those of close rooms and confined air, and of too exclusive a use of the medical treatment termed "antiphlogistic." As an illustration of my meaning, I may mention the experiment of Majendie, who divided the orbital branch of the fifth pair of nerves within the cranium of a living animal; the consequence of which was, that the eye became affected with all the symptoms and appearances of what is called intense inflammation, and blindness ensued. It is plain that the whole course of antiphlogistic treatment, carried to its fullest extent, would fail in such a case to cure the eye; but a restoration of the nervous power, by reunion of the divided branch, if that could have been effected, would have cured it; the antiphlogistic means would have assisted, by unloading the distended vessels, and facilitating their restoration to the natural calibre. These would be the secondary means, but not the principal; and this is the view I take of the treatment of pulmonary consumption, to restore and preserve the perfection of the sensorial functions, by which the due quantity of nervous energy may be conveyed to the affected organ, by the nerves supplying it; secondarily to this, as much of the antiphlogistic treatment as may be

deemed needful to relieve congestion and to remove local obstruction, without in any way compromising the normal state of the sensorial and nervous functions.

The powerful effect of the early morning air, in allaying excitement, and preventing the exhaustion of nervous energy, in the nervous extremities or filaments spread out and interwoven with the substance of the lungs, with which it comes into immediate contact, is so great and superior to all other means, that it should, in my opinion, under the eye and by the regulation of the medical attendant, form the foundation of the whole course of treatment; without it, he will not be enabled to administer the due proportion of stimulating and nutritious aliment; it is the proper preparation for the administration of medicinal sedatives; by it the muscular power is preserved from undue exhaustion, and the sanguiferous system from running away in waste; for this course of treatment I have invariably found to diminish the rapidity of the pulse. The profuse nocturnal perspirations are also soon subdued by this method of treatment, and the great debility they occasion avoided. The skin assumes a healthier action in proportion to the extent of exposure to the external atmosphere, particularly to the morning air.

If these views are in any wise correct, it is obvious that the present position of medical men generally is unequal to the task of undertaking the cure of pulmonary consumption; they live in the towns, for the most part, or large villages, and are compelled on this account to discharge the cases of consumption which they meet with to the sea-coast or some watering-place, where probably but little interest is taken with a view to cure them. I think in the neighbourhood of every large town, sufficiently distant to be clear of its contamination from smoke, &c., and in well-chosen spots, medical men should be established with all the means about them for the treatment of the disease in question, to whom those who live in the towns should confide their patients of this kind, at the same time rendering them the benefit of their advice as far as needful, rather than that they should be dismissed to the care of nurses and lodging-house keepers, in distant situations; and again I repeat, I do think that for the poorer

classes, on account of the magnitude of the evil as regards them, hospitals especially for their use and treatment ought to be established in fit situations. For my own part, from a decided conviction of the benefit to be derived, and the great advantage arising, from the reception of the consumptive patient under the roof of the medical attendant, provided the situation of his house is what it ought to be, and all the means needful for the treatment are at his command, I shall continue, if I have opportunity, as heretofore, to receive patients into my house, that they may have an opportunity of obtaining whatever benefit is to be derived from the plan of treatment herein described. From the foregoing observations it will be observed that the medicinal treatment has been confined almost entirely to the exhibition of sedatives. Antimony and ipecacuanha I decidedly object to; they do not go to the root of the evil, are mere temporary remedies, if remedies at all, and they have a direct tendency and do indeed always produce excessive debility. With regard to the use of prussic acid, and hydriod. potassæ, both of which have been extolled, there may be cases in which their exhibition might be serviceable, providing always that the system herein laid down, of air, exercise, diet, &c., formed the chief part of the treatment, but I have not hitherto found it necessary to resort to their use, therefore can say but little regarding their efficiency.

As far as my experience goes in the use of carbonate of soda, which has also been extolled, I decidedly object to it, believing, from closely watching its effects, it has a tendency to cause congestion and infiltration in the substance of the lungs, when given for any length of time. I infer thus much from having observed increased dyspnœa and cough, and a purple look of the skin, with a labouring small pulse, to be the result of its exhibition. I believe therefore in the correctness of Majendie's experiment, wherein by the injection of this salt into the veins of living animals, the *post-mortem* examinations invariably showed a congested state of the lungs, with infiltration into their substance. Coupling this with my own observations of its effects on the human frame, in cases of pulmonary disease, I have a great aversion to its

exhibition, or to that of the nitrate of potass. I have found it advantageous to avoid the use of all neutral salts, with the exception of common salt, as a condiment. Since the foregoing was written, the case of the young man before mentioned as under treatment has terminated fatally. Gurgling and pectoriloquy of the left lung, with increased dyspnœa, and every symptom indicative of the almost total destruction of that portion of the organ, with the occurrence of diarrhœa on the 17th and 18th of September, terminated in death on the 20th. Thus the sixth case treated in the way herein recommended has proved unsuccessful. It remains to be seen whether, in future, five cases out of six can be cured by this plan. Whatever occurs under my own observation, if I have opportunity, shall be faithfully recorded, whether in favour of or against this method, to recommend and extol which, at the expense of truth, is neither my wish nor intention, but that there are ample grounds to justify an extended trial of the system I think will be admitted generally, and with fair hopes of improved results comparatively.

The chances against recovery in the last case mentioned were great. The patient had from early youth grown up with unusual rapidity, being when about seventeen or eighteen years of age nearly six feet in height. He had suffered from a succession of serious and dangerous diseases—namely, fistula in ano, hæmoptysis for several years, and, a few months previous to the development of the pulmonary disease, intense hypochondriasis. Thus had the constitution been undermined and weakened previous to the attack of disease on the lungs, so that this could hardly in fairness be admitted as a case to test the efficacy of the treatment applied.

In conclusion, I have to add that the natural, rational, and, so far as to my knowledge of it has been tried, the successful treatment of pulmonary consumption appertains exclusively neither to the theory of phlogiston, or inflammation, nor to that of the Brunonian system; but it is a mixture of both. As I believe, both theories have truth in them, but are not exclusively true, and independent one of the other. Further, physiological investigations into the nature of nervous power, and the influence it exercises over the sanguiferous and

other tissues, by its presence or absence, or undue exhaustion or irritation, will probably develope the true nature of those changes of structure which occur under the influence of disease, which are designated by the term "phlogosis" or inflammation, language which not improbably is destined at some future period to be expunged from medical science and literature; or, at least, to be understood as conveying very different ideas of the nature of disease than are commonly implied in those terms at present, as well as to effect a great change in the mode and application of remedial agents generally. The experimental labours of Majendie in France, in relation to the operation of the nervous power in animal life, and the investigations of Kiernan and others in England, as to the condition of the capillary vessels in diseased parts, have both a direct tendency to weaken the faith hitherto so universally and implicitly placed in the old theory.

BIOGRAPHICAL NOTICE OF DR. BODINGTON.

[The following short biographical notice of the Author of the Essay reprinted in the preceding pages may be of interest to the reader. It is taken from the 'British Medical Journal' of March 11th, 1882.]

GEORGE BODINGTON,

M.D. ERLANGEN, L.R.C.P. EDIN., L.S.A.

Dr. George Bodington, whose death occurred on February 5th, at Sutton Coldfield, in his eighty-third year, was a well-known and widely-respected practitioner. He was a descendant of one of the old yeoman families of Warwickshire, the Bodingtons of Cubbington, who have tilled their own land in that parish since the time of Henry VIII. As a boy, he was sent to Magdalen College School, at Oxford; and, when seventeen years old, was apprenticed to a Mr. Syer, a surgeon of Atherstone, by whom he was transferred, a year later, to a Mr. Wheelwright, a surgeon in the City of London. He afterwards became a student at St. Bartholomew's Hospital, and obtained the L.S.A. in 1825. On this qualification Dr. Bodington began to practice in Birmingham; but in a very short time he removed to a neighbouring village of Erdington, where he carried on a very successful practice until 1843. In this year he determined to devote his whole time to the treatment of the insane at the Driffold House Asylum, Sutton Coldfield, of which he had become proprietor in 1836. At this work he continued until his retirement in 1868, when he handed the Asylum over to his son, Dr. G. F. Bodington. Since that date he mainly occupied himself with public work

in connection with the royal borough of Sutton Coldfield, of which he was warden in the years 1852–3, 1853–4, and, up to 1881, one of its most active members and magistrates.

Dr. Bodington was not a silent member of the profession. An acute observer, a vigorous thinker, and a good, solid, and fluent speaker, he was always able to take his share in the public work connected with his position. In politics he was a man of strong opinions, and to the last was an ardent Protectionist, never wavering in his faith, but ever earnest in advocating the theories in which he believed. It is more especially, however, as a forgotten medical author that we would speak of Dr. Bodington. His first medical essay was a letter on a case of Asiatic Cholera, addressed to the President and Council of the Central Board of Health, London, and published in 1831. This pamphlet was a vigorous protest against the use of bleeding and calomel, and displayed the same tendency to think and reason for himself which made his later essay on the Treatment and Cure of Pulmonary Consumption, 1840, so very noteworthy. In this little book, Dr. Bodington anticipated by many years the modern views on the treatment of phthisis. In 1840, consumptives were closely and carefully confined, from a fear of the evil influence of cold fresh air. Against this, Dr. Bodington earnestly protested, as "forcing them to breathe over and over again the same foul air, contaminated with diseased effluvia of their own persons." Arguing against the value of antimony, calomel and bleeding, he urged the free administration of nutritious food and stimulants, with plenty of exercise in pure air, and, if possible, dry, "frosty air." He did not value sea-air highly, but contended for the drier air of inland districts. His great specific was cold, dry air, which, he said, had a most powerful influence in "healing and closing of cavities and ulcers of the lungs." It is remarkable that a village doctor should have arrived, in 1840, at these conclusions, which anticipate some of our most recent teachings. He was severely handled by the reviewers, and so discouraged from pursuing observations which might have been of the greatest value.

In 1857, some years after he had given up general practice,

a writer in the 'Journal of Public Health' unearthed Dr. Bodington's treatise, and did him tardy but ample justice. We are glad again to claim for a general practitioner the high credit of having been the first, or among the first, to advocate the rational and scientific treatment of pulmonary consumption. Dr. Bodington was for many years a member of the Birmingham and Midland Counties Branch of the British Medical Association.

ON SOME MORBID APPEARANCES

OF THE

ABSORBENT GLANDS AND SPLEEN.

BY

DR. HODGKIN.

[Reprinted by permission from the original paper in the 'Transactions of the Royal Medico-Chirurgical Society,' vol. XVII., 1832.]

ON SOME MORBID APPEARANCES

OF THE

ABSORBENT GLANDS AND SPLEEN.

The morbid alterations of structure which I am about to describe are probably familiar to many practical morbid anatomists, since they can scarcely have failed to have fallen under their observation in the course of cadaveric inspection. They have not, as far as I am aware, been made the subject of special attention, on which account I am induced to bring forward a few cases in which they have occurred to myself, trusting that I shall at least escape severe or general censure, even though a sentence or two should be produced from some existing work, couched in such concise but expressive language as to render needless the longer details with which I shall trespass on the time of my hearers.

Case I.

November 2, 1826. Joseph Sinnott, a child of about nine years of age, in Lazarus's ward, under the care of J. Morgan. His brother, his constant companion with whom he had habitually slept, died of phthisis a few months previously; he was much reduced by an illness of about nine months, during which time he had been subject to pain in the back, extending round to the abdomen. On his admission his belly was much distended with ascites. He had also effusion into the prepuce and scrotum. On the latter was a large ulcer induced by a puncture made to evacuate the fluid.

Head.—There was a considerable quantity of serous effusion under the arachnoid and within the ventricles. There were a

few opake spots in the arachnoid, but this membrane was in other respects healthy. The pia mater appeared remarkably thin and free from vessels. The substance of the brain was generally soft and flabby, but no local morbid change was observable.

Chest.—The pleura on the right side had contracted many strong and old adhesions, in addition to which there were extensive marks of recent pleuritis. On the left the pleura was nearly or quite free from adhesion, but there was some fluid effused into the cavity. There was some little trace of a tubercular cicatrix at the summit of the right lung, but the substance of both lungs was generally light and crepitant, with a very few exceedingly small tubercles scattered through them.

The mucous membrane exhibited an excess of vascularity; the bronchial glands were greatly enlarged and much indurated.

The heart appeared quite healthy.

Abdomen.—There was extensive recent inflammation of the peritoneum, in the cavity of which there was a copious seropurulent effusion, and the viscera were universally overlayed with a very soft light yellow coagulum, too feeble to effect their union, though evidently having a tendency to do so. The mucous membrane of the stomach and intestines was generally pale and of its ordinary appearance, but in some few spots it was softened and readily separated itself from the subjacent coat. The contents of the intestines were copious and of an unhealthy character, overcharged with bile. The mesenteric glands were generally enlarged, but one or two very considerably so, equalling in size a pigeon's egg, of semi-cartilaginous hardness and streaked with black matter. The substance of the liver was generally natural, but contained a few tubercles somewhat larger than peas, white, semi-cartilaginous, and of an uneven surface. The pancreas was firmer than usual, more particularly at its head, which was somewhat enlarged. The spleen was large and contained numerous tubercles. The absorbent glands about both the two last-mentioned organs were much enlarged. Both kidneys were mottled with a light colour, but were free

from induration. A continuous chain of much enlarged indurated absorbent glands of a light colour accompanied the aorta throughout its course, closely adherent to the bodies of the vertebræ, and extended along the sides of the iliac vessels as far as they could be traced in the pelvis. None of these vessels had been sufficiently compressed to occasion the coagulation of the contained fluids. The coats of the thoracic duct, which was large, were perfectly transparent and healthy.

Case II.

September 24, 1828. Ellenborough King, aged ten years, was admitted into Luke's ward on the 6th of August, 1828, under the care of Dr. Bright. He was the youngest of six children, of whom the first five were reported to be all healthy. This child had also been healthy till about thirteen months ago, when his strength, flesh, and healthy appearance began to fail. He was at that time living in the West of England. A tumour was observed in the left hypochondrium in the situation of the spleen, the glandulæ concatenatæ on the right side were observed to be considerably enlarged, but under the treatment employed, these tumours, as well as that in the situation of the spleen, were at times very considerably reduced in size.

It does not appear that he was ever subject to hæmorrhage, nor till very lately to dropsical effusion; his appetite was generally good. After his admission into the hospital the tumour on the left side was observed to extend considerably below the left hypochondrium, but was reported not to be so large as it had formerly been. The glands on the left side of the neck were swollen, as well as those on the right; the abdomen was somewhat distended, and there was considerable œdema of the scrotum.

The head was not opened.

The glands in the neck had assumed the form of large smooth ovoid masses, connected together merely by loose cellular membrane and minute vessels: when cut into they exhibited a firm cartilaginous structure of a light colour and very feeble vascularity, but with no appearance of softening or suppuration. Glands similarly affected accompanied the

vessels into the chest, where the bronchial and mediastinal glands were in the same state and greatly enlarged. There were some old pleuritic adhesions. The substance of the lungs was generally healthy. There was a good deal of clear serum in the pericardium, but this membrane, as well as the heart, was quite healthy.

In the peritoneal cavity there was a considerable quantity of clear straw-coloured serum mixed with extensive, recent thin diaphanous films. The mucous membrane of the stomach and intestines was tolerably healthy.

The mesenteric glands were but slightly enlarged, and but little if at all indurated; but those accompanying the aorta, the splenic artery, and the iliacs were in the same state as the glands of the neck.

The liver contained no tubercles, and its structure was quite healthy. The pancreas was rather firm, and the glands situated along its upper edge were, as before stated, greatly enlarged. The spleen was enlarged to at least four times its natural size, its surface was mammillated, and its structure thickly sprinkled with tubercles, presenting the same structure as the enlarged glands already described.

Case III.

BY H. PEACOCK, ESQ.

November 28, 1829. William Burrows, aged about thirty years. He was admitted into Naaman's ward on the 26th of September, 1829, under Mr. J. Morgan, for ulcers of a scrofulous character in the axilla and neck, accompanied with general cachexia; he had previously been a patient in Samaritan's ward with secondary symptoms of syphilis, and was supposed to have taken large quantities of mercury.

About four months before his death, which occurred on the 27th of November, abdominal dropsy made its appearance.

The body was extremely emaciated, some ragged excavated ulcers were situated about the right axilla and thorax; the ulceration extended beneath the neighbouring skin, and between the pectoral muscles. The muscles of the body were pale.

The head was not examined.

The left cavity of the chest contained about a pint of serum. The lung was rather œdematous, but otherwise healthy, with the exception of some puckering and apparently chalky deposit at its apex. The lung on the right side adhered closely to the walls of the cavity, the adhesions being firm and cellular. The lung resembled that of the left side, and was also slightly disorganised at its apex. The pericardium contained about an ounce of clear and straw-coloured fluid. The heart was small and flabby.

The abdomen contained about two pints of clear serum. The stomach and alimentary canal were much distended with flatus. The liver was of a shrunken irregular shape, and was connected to the diaphragm by a few firm adhesions. Its structure was indurated, pale, and thickly pervaded with a substance having a white, hard, tuberculous character, which in some parts had the form of defined rounded masses of the size of large pin heads, but for the most part was diffused. Some sections exhibited parts apparently stained with a dark ecchymosis as if from extravasated blood.

From some portions of liver seen after the inspection by Dr. Hodgkin, it appeared to him that the liver was in that state in which the acini become dense, rounded, and of a light colour, resembling small tubercles, and are readily detached: a condition of liver which is almost peculiar to those who have laboured under a cachectic condition from mercury. The gall-bladder was small and filled with a dark coloured green bile. The pancreas was not diseased. The spleen had contracted several firm adhesions to the neighbouring peritoneum ; it was enlarged to about twice its usual size, and was unusually firm. Sections exhibited its structure dense, rather dry, and of a dark red colour, but homogeneous. Dr. Hodgkin examined this spleen, a short time after its removal from the body, and found its substance generally pervaded by numerous minute translucent bodies somewhat resembling incipient miliary tubercles of the lung, but considerably smaller than these generally are.

The kidneys were pale, flabby, and slightly mottled.

A few small miliary tubercles were found in the peritoneum, about the inguinal region, resembling those which have been

noticed above in the liver. Some of the mesenteric glands were much enlarged and filled with a firm white deposit. The inguinal, lumbar, and aortic glands were similarly affected. The bronchial glands were in a similar state, and also extensively ossified (or loaded with earthy matter). The axillary glands were in a state of suppuration, and exposed by ulceration at the part. The thoracic duct presented nothing unusual.

Case IV.

January 8, 1830. Thomas Westcott, aged apparently about fifty years, by trade a carpenter, a patient of Dr. Addison in the Clinical Ward, admitted 30th of December, 1829. He was not at all wasted, but was rather plump than otherwise; he had a pale and peculiar, cachectic countenance, which, without minute description, may be suggested to the mind by comparing it to what is seen in some cases of confirmed disease of the spleen. The most remarkable feature in his case was the great enlargement of nearly, if not quite, all of the absorbent glands within reach of examination, but more especially in the axillæ and groins. Those at the side of the neck were scarcely less so. Most of these glands which were within reach were of about the size of pigeon's eggs, a few somewhat larger, and others rather smaller. They were of a smooth rounded or ovoid figure, and were only moderately firm, rather than indurated. An enlargement was also to be felt in one epididymis. The abdomen was distended, but the substance of the parietes appeared thick, no distinct tumour could be felt in the region of the spleen, or in any other part of the abdomen.

The functions of the brain had been somewhat disturbed, and the left eye did not see so well as the right.

It did not appear that this patient had been liable to any particular exposure, nor could any circumstance be referred to as the exciting cause of his malady. His death took place very suddenly in the morning of the 8th, and the examination was made four hours and a half after.

The veins of the head and neck were turgid. There was no lividity of the face. There were some ecchymosed spots on one of the legs.

The arachnoid was remarkably thick and opake. On the surface of the right hemisphere there was a diffused light rose-red colour, occupying the space of about the size of a crown piece; it appeared to depend on infiltration of the pia mater. This membrane separated readily from the surface of the brain. No morbid appearance was discovered in the substance of the brain, and no undue quantity of fluid in the ventricles. The cerebellum seemed to be, proportionately, rather small.

The right optic nerve was rather smaller than its fellow.

The glands in the axillæ and neck, as might have been expected, were found prodigiously enlarged, the deepest seated being in general the largest. The cellular structure around these was loose and free from any morbid deposit. These glands were smooth and of a whitish colour externally, with a few small bloody spots. When cut into, their internal structure was likewise seen to be of a light, nearly white, colour with a few small interspersed vessels. They were of a soft consistence, which might be compared to that of a testicle. They possessed a slight translucence, and were nearly or quite uniform throughout, exhibiting no trace of partial softening or suppuration. Although in appearance and consistence these enlarged glands bore considerable resemblance to some fungoid tumours, they presented nothing of the encysted formation. The alteration in this case seemed to consist in an interstitial deposit from a morbid hypertrophy of the glandular structure itself, rather than on a new or adventitious growth. The glands in the groin presented precisely the same character as those just described; the same may also be said of those in the thorax and abdomen, the situation and extent of which will be presently stated.

The pleuræ were nearly, if not altogether, free from adhesions and effusion. There were a few ecchymosed spots on the posterior part of the right lung; both lungs were spongy and crepitant, but rather emphysematous, and of a light colour, from the small quantity of blood which they contained.

The bronchial tubes contained some thick mucus.

The pericardium was healthy. The heart was greatly enlarged, and the right cavities particularly dilated; but the

left were also large and distended, with thickened parietes. The muscular structure however did not appear to be diseased. The blood in the heart was barely coagulated, resembling that recently drawn into a basin. The glands along the subclavian arteries and about the roots of the bronchi were much enlarged.

In the abdomen nothing particular was noticed about the peritoneum. The glands at the small curvature of the stomach, several in Glisson's capsule, and a large mass of them along the entire course of the abdominal aorta and iliac arteries were greatly enlarged. There was a marked difference in the mesenteric glands, which, though larger than is natural, were none of them of the prodigious size of those above mentioned; they were however of a light colour, and their increase of size evidently depended on an interstitial deposit similar to that of the other glands. One of the enlarged glands in the lumbar region had a good deal of superficial ecchymosis. The absorbent vessels connected with it were enlarged and distended with a bloody serum. A similar fluid less deeply tinged was found in the thoracic duct.

The liver was very large, pale, and slightly granular. The spleen was very greatly enlarged, being at least nine inches long, five broad, and proportionally thick; its colour was lighter and redder than is natural, and more firm and close. On cutting into it an almost infinite number of small white nearly opake spots were seen pervading its substance; they were of irregular figure, but a few appeared nearly circular. They appeared to depend on a deposit in the cellular structure of the organ. There were no tubercles in the spleen, but the spots just mentioned were perhaps a commencement of this kind of formation.

The pancreas was large and pale, but otherwise healthy. The mucous membrane of the stomach and bowels offered nothing remarkable.

Case V.

Inspection of a middle-aged man who had latterly been a patient of Dr. Back. He had long been in bad health, and had been for some time a patient under Dr. Bright. His last

most urgent symptoms were referable to the chest. When in the hospital the former time, he was observed to have the glands of the neck, and more particularly those near the upper part of the thyroid cartilage, considerably enlarged.

The body was emaciated. The glands before mentioned were still much enlarged, those in the axillæ were not observed to be particularly so, those in the groins were somewhat so. The abdomen was distended.

The head was not examined.

The greater part of one lung was distended, solid and void of air, its texture was rather soft and readily lacerable. Its colour seemed to be the result of the acute white hepatization very deeply soiled with reddish brown. The other lung was far from healthy, but it was rather engorged and softened than hepatized, and still contained air. One, if not both, pleuræ exhibited traces of recent inflammation with little or no effusion.

Nothing remarkable is remembered to have been noticed in the heart or pericardium.

In the abdomen there was a large quantity of serum with little appearance of coagulable lymph. In the stomach the mucous membrane was not quite healthy, presenting some indications of chronic inflammation; it, as well as the intestines, contained unhealthy secretions. The liver was of remarkably large size, weighing upwards of seven pounds. Its form and the smoothness of its surface were little if at all altered. The colour was somewhat mottled with a mixture of darkish green and yellow. The acini were manifestly enlarged, and it was suspected that they had undergone the fatty degeneration; but on exposure to heat, they appeared to contain little, if any, greasy substance. The spleen was very large, its weight is not known, but it appeared to be four or five times the average size; its texture was rather more solid and compact than is natural; it contained no tubercles, but the cellular structure interspersed through the parenchyma was more conspicuous than is usual, in some parts appearing in the form of specks, in which it was soft and easily broken down. The absorbent glands accompanying the aorta were greatly enlarged, some equalling at least the size of a pullet's

egg; some, but more especially those in the abdomen, were reddened by injected or ecchymosed blood. The receptaculum chyli and some of the larger lymphatic branches contained blood mixed with dark and almost black coagula. The thoracic duct, which was large, was filled in the same manner.

Case VI.

July 19, 1830. Thomas Black, aged about fifty years, admitted into Barnabas Ward on the 30th of June, 1830, under the care of Dr. Bright. He was affected with large tuberose swellings of considerable firmness on both sides of the neck, in both axillæ, and in both groins. His abdomen was greatly distended, he suffered from difficulty of breathing, and was pale and rather emaciated.

It appeared that about two years before he had laboured under fever. That, being exposed to cold, shortly after he observed the glands swell on one side of the neck; not long after on the other side, and, in succession, those in the situations above mentioned.

The body presented considerable lividity, especially the extremities on the left side. The left side of the neck and the left axilla presented the largest tumours.

The head was not examined.

The tumours evidently depended on greatly enlarged absorbent glands along the course of the carotid and axillary arteries. On raising the sternum they were found to extend along the subclavians and internal mammaries; they were also found, though in less number and size, along the aorta in the posterior mediastinum; but it did not appear that the bronchial glands were at all similarly affected. There was some appearance of recent pleuritis and serous effusion into the chest.

In the peritoneal cavity there was a large quantity of yellow serum mixed with some flakes of lymph. A large and continued mass of nodulous glandular tumours surrounded the aorta and iliac arteries, but the mesenteric glands were very slightly affected. The omentum was corrugated. The liver was rather small, with an irregular and uneven surface, its colour was lighter than natural, and the acini were converted

into rounded fleshy masses, without any very great change in the intervening cellular membrane. It also contained two or three white tubercles, which resembled fungoid tubercles of the liver, and were situated at the surface of the organ. The structure dependent on cysts was not demonstrable in them, but from their form it might be suspected. The spleen was of moderate size, and appeared to be quite free from any adventitious deposit, which is a fact worthy of remark, as in very many cases of glandular disease bearing resemblance to the present case, this organ has been affected, and generally tubercular. The pancreas was imbedded in the tumours, but appeared pretty healthy.

The kidneys were livid and congested.

The tumours which formed the most striking features in this case very nearly resembled each other in structure; there appeared to be merely a little difference in firmness; they were of various sizes, from that of a horse-bean to that of a hen's egg; they had a round or ovoid figure, and were invested by a thin membrane, pretty smooth externally, and connected to the loose and apparently healthy cellular membrane which surrounded the tumours; the other surface intimately adhered to the structure of the tumour. This texture was apparently pretty uniform throughout, and was pale and slightly translucent, and could not be said to evince traces of the mode of formation dependent on cysts; they showed no disposition to suppuration or softening; some, when just taken from the body, were of a semi-cartilaginous hardness, but became considerably softer after a little maceration.

The aorta appeared to be a little compressed by the tumours.

This patient had an old reducible hernia on the right side, on which side there appeared to be hydrocele also.

It may be observed that, notwithstanding some differences in structure, to be noticed hereafter, all these cases agree in the remarkable enlargement of the absorbent glands accompanying the larger arteries; namely, the glandulæ concatenatæ in the neck, the axillary and inguinal glands, and those accompanying the aorta in the thorax and abdomen. That as far as could be ascertained from observation, or from

what could be collected from the history of the cases, this enlargement of the glands appeared to be a primitive affection of those bodies, rather than the result of an irritation propagated to them from some ulcerated surface or other inflamed texture through the medium of their inferent vessels; and that although in some instances the glands so enlarged may contain a little concrete inorganizable matter, such as is known to result from what is called scrofulous inflammation, it is obvious that this circumstance is not an essential character, but rather an accidental concomitant to the idiopathic interstitial enlargement of the absorbent glandular structure throughout the body. That unless the word inflammation be allowed to have a more indefinite and loose meaning than is generally assigned to it, this affection of the glands can scarcely be attributed to that cause, since they are unattended with pain, heat, and other ordinary symptoms of inflammation, and are not necessarily accompanied by any alteration in the cellular or other surrounding structures, and do not show any disposition to go on to the production of pus or any other acknowledged product of inflammation except where, as in the cases above alluded to, inflammation may have supervened as an accidental affection of the hypertrophied structure. Nor can the enlargement in question, with any better reason, be attributed to the formation of any of those adventitious structures, the production of which I have already had occasion to describe, and have referred to the type of compound adventitious serous cysts. Notwithstanding the different characters which this enlargement may present, it appears in nearly all cases to consist of a pretty uniform texture throughout, and this rather to be the consequence of a general increase of every part of the gland than of a new structure developed within it, and pushing the original structure aside, as when ordinary tuberculous matter is deposited in these bodies. At the same time it must be admitted that the new material by which the enlargement is effected presents various degrees of organizability, which in some instances is extremely slight, and appears incompetent to maintain the vitality of the affected gland. In such cases the new structure will generally become opake, soften, or

break down, and acting as a foreign irritating body, excite irritation and lead to the formation of abscess. The case of William Burrows (No. III.), and also that of a native of Owhyhee, who died in Guy's Hospital with extensive abscess in the axilla, are, I believe, to be considered of this kind.

The remarkable appearance of blood in the thoracic duct and some of the absorbents, observed in the case of Thomas Westcott (No. IV.), although it sufficiently attracted my attention to induce me to have a drawing immediately made, was only regarded as an accidental occurrence; but the recurrence of the same phenomenon to a much more considerable and striking extent in the recent case (No. V.), induces me to suppose that it is intimately connected with this glandular disease. It may also be observed that in the last-mentioned case the enlarged glands from which the lymphatic vessels containing blood proceeded, were particularly loaded with blood; and if my recollection does not deceive me, a tendency to the same state was present in the case of Westcott, although it escaped notice in the record of the inspection.

Another circumstance which has arrested my attention in conjunction with this affection of the absorbent glands is the state of the spleen which, with one exception, in all the cases that I have had the opportunity of examining, has been found more or less diseased, and in some thickly pervaded with defined bodies of various sizes, in structure resembling that of the diseased glands. We might, from this circumstance, be induced to suspect that these bodies in the spleen, like the enlarged glands themselves, are the result of the morbid enlargement of a pre-existing structure, an idea which may derive some support from the fact that, although in human spleens no glandular structure is distinguishable, in those of some inferior animals a multitude of minute bodies exist which appear to be of that nature. Malpighi indeed considered the acini or granulations in the spleen to be glands. In one instance it may be remarked that although the glandular derangement had advanced very far, the depositions in the spleen were extremely minute, assuming the appearance of miliary tubercles. Hence, we may conclude that if, as I

conceive to be the case, there be a close connection between the derangement of the glands and that of the spleen, the latter is a posterior effect, and on this account may not always have been produced when that of the glands or some other disease carried off the patient. In other instances, the spleen, although much enlarged, contained no regular defined bodies, although the white cellular structure was very evident in increased quantity pervading the dense and enlarged mass of the organ. In such cases it might still be doubted whether, had the patient's life been protracted, the deposits in question might not ultimately have taken place, yet I am inclined to believe the contrary, and to suspect that either the previous derangement of the structure of the organ or the greater age of the patients may have opposed their production. I mention this effect of age merely as a suspicion or idea, founded on the fact that I have very rarely, if ever, met with any kind of tubercles, excepting those of malignant character, in the spleens of adults, whilst they have been by no means unfrequent in a far less number of spleens of children and young persons which it has fallen to my lot to examine. The only exceptions which I can call to mind, as having been furnished by my own observation, have been in the case of one or two foreigners from warm countries, on whom the change of climate may have had considerable effect.

Some further confirmation of my suspicion that a connection exists between the glandular derangement of which I have been speaking, and the state of the spleen, has occurred to me since the preceding observations were written. Whilst examining the unrivalled collection of pathological drawings made by my friend Dr. Carswell, I was struck with one representing a greatly enlarged spleen, loaded with large tubercles of a rounded figure and light colour. I immediately recognised it as a fine example of the affection I have been describing, and my suspicions were presently confirmed by the Doctor's showing me another fine drawing of the greatly enlarged glands of the neck, axillæ, and groins of the same subject.

The Doctor has favoured me with a copy of the case, and allowed me to place the drawings themselves before you.

Case VII.[1]

"Cancer Cerebriformis of the Lymphatic Glands and of the Spleen.

"The delineations of this very remarkable case were taken from a man who died in the hospital St. Louis at Paris, in the month of April. Monsr. Lugol, one of the physicians of the hospital, and under whose care the patient was, has promised to give me the particulars of this case. I was told however that the patient, who was between thirty and forty years of age, stout made, and not lean, had been affected with swelling of the glands under the jaws, along both sides of the neck, in the axillæ and groins for between three and four months, from which he had suffered but little inconvenience, to which he had paid but little attention, and had employed no remedies. It was only a short time before he applied to be taken into the hospital that he felt a difficulty in swallowing, which rapidly increased, and for the the last two or three days was such as to prevent him from taking any kind of food whatever. As his appetite had never been affected by the disease, he was, when he came to the St. Louis hospital, in a state of great suffering, not only from want of food and from debility, but from the idea that he was rendered incapable of satisfying the cravings of hunger, together with the prospect of inevitable death.

"He lived rather more than two days.

"*Inspection of the body.*—On each side of the neck were large groups of glands extending from the angle of the jaw down to the clavicle, where they were joined to another group coming up from the axillæ and passing under the clavicle. The submaxillary and sublingual glands were greatly enlarged, and, united with the other lymphatic glands, formed an almost continuous chain stretching along the border of the jaw and uniting under the chin. These glands were of various sizes, some of them were not larger than a pea, while others were as large as a hen's egg; they were round, oval, or of an irregular form, particularly where they were united by a

common capsule. A great many of them presented the colour which distinguishes them in the healthy state; others were of a yellowish tinge, with more or less redness and vascularity; whilst a few were of a deep red colour and highly vascular. The greater number of them when pressed between the fingers felt pretty firm and somewhat elastic; those that were red and vascular were softer. All of them were enclosed in a thin but firm capsule, which contained a substance of the colour and consistence of brain, and in which were distributed a considerable number of blood-vessels. In the softest the vascularity was such as to give to the cerebriform matter an appearance resembling a mixture of equal parts of brain and blood. A similar state of the glands was observed in both groins. The greater number of them were as large as pigeon's eggs, and could be followed passing upwards under Poupart's ligament, surrounding the great blood-vessels, and terminating in the diseased lymphatic and mesenteric glands. The diseased appearances observed in the glands of the groin are represented in No. 4-6, Fig. I.; those of the neck and axillæ No. 4 a. In No. 4-6 is seen the appearance of the substance of which the glands were formed; in one of them the vascularity of this substance is seen to be very great, whilst in the other the vessels are few in number, long, and slender. The quantity of cerebriform matter is also seen to differ considerably in each. Besides, in the lower figure the lobulated structure which it presents is pretty well marked. In Fig. III. two of the glands are represented after having been injected. In the upper one a large vein is seen coming out from it, and arising from a great number of minute vessels, which apparently are situated near the surface of the gland. In the lower one, the corresponding artery is shown, dividing and subdividing into an immense number of extremely fine branches, which are distributed throughout the substance of the gland. No. 4 c, Fig. I, represents an enormous tumour formed by the lymphatic glands situated under the liver, duodenum, pancreas, and great blood-vessels of these parts. It was as large as an adult's head, projecting forwards on a level with the convex surface of the liver, and carried before it the duodenum, pancreas, and gall-ducts, which passed over

its anterior surface. Fig. II. represents a section of this tumour, which is seen to be formed of a great number of glands, some of which are as large as a small orange. Like those of the neck and axillæ, they were composed of cerebriform matter, possessing a greater or less degree of vascularity. In the centre of the tumour considerable hæmorrhage had taken place, the centre of the hæmorrhagic effusion was occupied by coagulated blood, and the circumference by layers of fibrine. The vena cava and aorta passed through the tumour, and the former was nearly perforated by one of the diseased glands.

"No. 4 c represents the same pathological condition in the glands situated in the posterior fauces. The glands situated around the root of the tongue were so much enlarged as to shut up completely, by their projecting upwards, backwards, and forwards, the posterior nares and superior aperture of the œsophagus. I could not ascertain the precise state of the epiglottis, but it must to a certain extent at least have been free, as it did not appear that inspiration had been much impeded. The amygdalæ, formed entirely of cerebriform matter, presented a pale-yellow colour tinged here and there with red specks, produced apparently from the rupture of minute blood-vessels. They have also lost that characteristic appearance from which they derive their name, having become almost perfectly smooth from the accumulation of the cerebriform matter and the distention of their envelope.

"The spleen was the only organ apart from the lymphatic glands which presented a similar, or indeed any, disease in this remarkable case. The external surface of this organ is shown in No. 4 a, Fig. I. Besides great increase of its bulk, it presented externally a great number of irregular elevations surrounded by redness and vascularity. When divided longitudinally, Fig. II., it appeared to be formed entirely of cerebriform matter and fine blood-vessels; hardly any trace of its natural structure being observable. It presented a lobulated structure; the lobules varying from the size of a small pea to that of a large gooseberry; these being again divided and subdivided into smaller ones—the boundaries of the lobules and the intersections of the latter were the parts

in which vascularity was greatest—it did indeed appear as if the lobulated structure had been the result of a vascular net-work so disposed as to inclose and separate more or less completely portions, of different sizes, of the cerebriform matter. It depended however, in all likelihood, on the structure of the spleen, in the cells of which, or in the blood which they contain, the cerebriform matter was deposited or formed, whilst the blood-vessels which surrounded the lobules and ramified in their intersections arose from those which belong to the splenic cells.

"The body having been removed by inadvertence before I had time to examine the chest, I did not ascertain the state of the bronchial glands, but I was informed by one of the house-physicians that they were not diseased."

Although the Doctor has employed the term "cerebriform matter," which conveys a ready idea of the texture of the diseased glands, he will excuse my differing from him so far as to regard the affection in this case as distinct from cerebriform cancer. I feel the less difficulty in doing so in the recollection that one of the cases of which I had given the details was, like Dr. Carswell's, considered as fungoid until a special and close inspection had detected the difference.*

Besides the preceding cases, of which I have been enabled to obtain the inspections, I have met with other examples in the living subject which, as far as the glands were concerned, were evidently of the same character with those I have been describing. One of the most remarkable occurred in the person of a Jew, apparently between forty and fifty years of age; the glands in the neck were prodigiously enlarged, forming smooth ovoid masses, unaccompanied by inflammatory symptoms or thickening of the surrounding cellular structure. The glands in the axillæ and groins were in the same state; in fact, in this case the enlargement was more considerable than in any other that I have witnessed. His

[* The portraits here referred to have already been published by the New Sydenham Society from Carswell's original drawings. They constitute Fasciculus XII. of the Society's 'Atlas of Pathology.']

general health was much impaired; I do not recollect that there were any dropsical symptoms at the time I saw him. I accidentally lost sight of him, but afterwards learnt that he died about two months from the time of my seeing him.

Another case occurred in a cachectic, rather emaciated child, who was brought, on one occasion only, as an out-patient to Guy's Hospital. The glands in the neck, axillæ, and groins were considerably enlarged, and as far as I could judge were of the firm character observed in the cases of Joseph Sinnott and Ellenborough King, rather than the softer and more fleshy character noticed in the glands of Westcott, Black, Case V., and, as far as I could observe, in that of the Jew just mentioned.

A pathological paper may perhaps be thought of little value if unaccompanied by suggestions designed to assist in the treatment, either curative or palliative; on this head however I must confess that I have nothing to offer.

Most of the cases, it may be observed, were those of patients in the hospital, where they had not sought admission until the disease had reached an advanced and hopeless stage. The Jew was the only individual whom I had an opportunity of treating myself, and him only for a short period, when his case had already become hopeless. The cascarilla and soda which were given with a view to improve his general health, and the iodine employed as the agent most likely to affect the glands, appeared to be productive of no advantage, on which account it is probable the patient withdrew himself from my observation. Were patients thus affected to come under my care in an earlier and less hopeless period of their malady, I think I should be inclined to endeavour as far as possible to increase the general vigour of the system; to enjoin, as far as consistent with this object, the utmost protection from the inclemencies and vicissitudes of the weather; to employ iodine externally, and to push the internal use of caustic potash as far as circumstances might render allowable. I mention this last part of the treatment

in consequence of the strong commendation which Brandrish has bestowed on the use of this caustic alkali in absorbent glandular affections. The views which I have been induced to take respecting the functions of the absorbent vessels would make me the more disposed to adopt it.*

* Shortly after the reading of this paper, I was favoured with the following communication from my friend G. O. Heming, of Kentish Town:—

"DEAR SIR,

"You will, I am sure, be pleased with the following extract from Malpighi. Yours truly, G. O. HEMING.

"'In homine difficilius emergunt [speaking of the granules in the spleen]: si tamen ex morbo universum glandularum genus turgeat, manifestiores redduntur, auctâ ipsarum magnitudine, ut in defunctâ puellâ observavi, in quâ lien globulis conspicuis racematim dispersis totus scatebat.'"

Thomas Hodgkin

BIOGRAPHICAL NOTICE OF DR. HODGKIN.

[The following biographical notice of Dr. Hodgkin is taken from the 'Lancet' of April 21st, 1866.]

THOMAS HODGKIN, M.D.

On the 5th instant, at Jaffa, whither he had gone on one of those missions of love and mercy in which he delighted, died, at the age of sixty-eight, Dr. Thomas Hodgkin. His medical brethren will feel his loss as that of a physician of rare talent; as one who was a fine scholar, an accomplished linguist, and a large-minded philanthropist. To his more immediate friends his loss is irreparable. Few men were more beloved than Dr. Hodgkin: his truly Christian charity, his unostentatious piety, his utter self-abnegation, won and kept the love and esteem of all who knew him.

Thomas Hodgkin was born at Tottenham, January 16th, 1798. His father, of whom he always spoke with much affection, was a member of the Society of Friends, and engaged in tuition. Under his care the son, although a prematurely born and delicate child, became a perfect Latin and Greek scholar, whom the late distinguished Dr. Prichard was proud to own as friend and equal. In after years, Dr. Hodgkin learned to write and speak fluently French, German, and Italian.

In 1821, after studying in Paris, Dr. Hodgkin took his degree as doctor of medicine at Edinburgh; in 1825 he became a member of the College of Physicians of London. He never acknowledged the title of Fellow of the College, refusing, as did his friends Sir James Clark and Dr. Arnott,

to accept an honour which he thought involved an invidious distinction.

Dr. Hodgkin was an ardent yet patient student in the wards of Guy's Hospital; he was, while yet a young man, appointed curator of its Museum, and his many pathological preparations, still within its walls, and, above all, his catalogue of its contents, attest the knowledge and zeal with which he fulfilled his duties. He had naturally looked forward to the office of Physician; to his great mortification, however, his claims were passed over, and Dr. Babington, whose death occurred within a few days of his own, obtained the post, at that time almost entirely in the gift of the treasurer of the hospital.

In spite of the prejudice raised in some minds by his dress and opinions, which were those of a sincere member of the Society of Friends, Dr. Hodgkin's talent and professional knowledge made his way. His work on the "Morbid Anatomy of the Mucous and Serous Membranes" was already an acknowledged text-book, and he was invited to undertake the task of reorganizing the medical school at St. Thomas's Hospital, in which he was appointed Lecturer on the Practice of Physic. On the formation of the University of London, he was appointed one of the Senate, an office which he retained to the last. His name appears, not undistinguished, on the roll of nearly every medical society in this country or abroad.

Although possessing the entire confidence of those who knew his worth and talent, Dr. Hodgkin never obtained a large share of practice. He had no worldly wisdom, and did himself, and, perhaps, others injustice by a disregard of due professional remuneration, which amounted almost to eccentricity. On one occasion, after sitting up all night with a man of very large fortune, Dr. Hodgkin offended him by filling up a blank cheque with the sum of £10, and made the offence still greater by telling him that "he did not look as if he could afford more." Dr. Hodgkin was never again sent for to the gentleman. It was difficult to make Dr. Hodgkin take the fees he had earned, and for this reason alone many of his friends would not consult him.

Dr. Hodgkin was an enthusiastic lover of his profession:

most unselfishly, most earnestly he ever laboured for its advantage; with what success his published works manifest, with what self-denial one instance will illustrate. In 1857 some friends, Sir James Clark at their head, set on foot a subscription for a testimonial to Dr. Hodgkin, which soon amounted to nearly three hundred guineas. He would not accept this in any form, and at his reiterated entreaty it was made over to the Medical Benevolent College.

The most important works of Dr. Hodgkin are his two volumes, entitled "Lectures on the Morbid Anatomy of the Serous and Mucous Membranes," and "Means of Preserving Health," and his translation, with notes and additions, of Edwards "On the Physical Agents of Life." There are, besides, many papers of his published in the various medical periodicals; and during his whole life he maintained a constant correspondence with many of the leading scientific men at home and abroad.

Ethnology, intimately connected as it was with philanthropic feelings and pursuits, was Dr. Hodgkin's favourite study. To his patient and persevering exertions the present position of the Ethnological Society is almost entirely due; he was several times president, and always one of the vice-presidents of it and of the Geographical Society, and a constant attendant and speaker at the meetings of both.

Although, as before observed, not robust, Dr. Hodgkin was a man of untiring energy, and retained all his powers of mind and vigour of thought in unabated force. He had accompanied his friend Sir Moses Montefiore on a successful mission to Morocco; and this year, with the object of relieving the miseries of the Jews in Palestine, had again lent his valuable assistance. He died of dysentery—this much the telegraph had told us; but, strange to say, no details have as yet reached England. Dr. Hodgkin was emphatically a good man, and a sincere and devout Christian. We may believe that his end was peace, and that the manner of his dying was consistent with the tenour of his blameless life.

THREE SELECTED PAPERS

BY

SIR JAMES PAGET, BART.,

F. R. S.

1.—On the Relation between the Symmetry and the Diseases of the Body. December, 1841.

2.—On Disease of the Mammary Areola preceding Cancer of the Mammary Gland. 1874.

3.—On a Form of Chronic Inflammation of Bones (Osteitis deformans). November, 1876.

ON THE

RELATION BETWEEN THE

SYMMETRY AND THE DISEASES OF THE BODY.*

The relation between the processes of disease and the symmetrical form of the body has usually been studied only with a view to determine the circumstances in which one lateral half of the body is more frequently affected with a given disease than the other is. And, with this view, many interesting facts have been observed: so many, indeed, that they have drawn away the attention of pathologists from those which, though they are less numerous, are sufficient to render it highly probable that it is a law of the animal economy, that, when uninfluenced by disturbing causes, all general or constitutional diseases affect equally and similarly the corresponding parts of the two sides of the body.

Of this last class of facts, the following are examples:—

I. In the body of a woman, fifty-one years old, who died of a disease in no degree affecting the elbow-joints, I found both of them exhibiting exactly the same morbid changes. In each a portion of the cartilage, of an irregularly triangular form, had been removed by a chronic diseased process from the middle of the great sigmoid cavity of the ulna; and into each of the spaces thus formed there had grown a process of synovial membrane and fat, which accurately fitted into it. Above each of these larger ulcerations of the cartilage there was a smaller one. The rest of both the joints was healthy, and bore no trace of having been recently affected by any

* Read before the Royal Medico-Chirurgical Society of London, Dec. 14th, 1841.

acute disease. On comparing the two ulnæ, the exact resemblance of the alterations in each was most striking: except by the position of the bones, the one could scarcely have been distinguished from the other, for the likeness extended to nearly every one of the numerous minute irregularities in the outline and depth of the ulcerations, and of the processes of membrane that had grown into them. (A preparation of the diseased parts is before the Society.)

II. In two knee-joints from a woman aged seventy, I found exactly similar morbid changes. In each the cartilages of the patella, the femur, and the head of the tibia were affected with the well-known fibrous degeneration, in precisely the same extent and degree, and in each the edges of the semilunar cartilages were similarly and equally affected by the same disease. There was also on each outer condyle a spot of exactly the same form and size, from which the cartilage was completely removed, and where the exposed and hardened bone formed a shallow depression into which a corresponding elevation on the top of each tibia accurately fitted. There was no morbid change in either joint that was not exactly repeated in the other.

III. A preparation which I made some years ago exhibits similar effects of disease in the heads of two femora from the same subject. From each the ligamentum teres is entirely removed, and on each there are, just above the cavity in which it had been fixed, two small and almost exactly similar losses of substance in the cartilage. The rest of both joints is healthy.

IV. A similar, but yet more striking instance of symmetrical disease was presented in two hip-joints (of which the preparation is before the Society), which I recently examined in the body of a woman, aged sixty-eight, who died of general dropsy, and of which, as well as of most of the diseases mentioned in this paper, preparations are preserved in the Museum of St. Bartholomew's Hospital. In each of these joints there was attached to the head of the femur a similar, very slender shred of fibrous tissue, the remnant of the ligamentum teres; on each femur there were similar small spots, from which the cartilage had been removed; and

more than these, there was a spot on the exactly corresponding part of the neck of each femur, from which the investing fibrous tissue had been removed by ulceration, leaving an aperture into which an irregular elevation of bone had grown. The aperture and the elevation in each were so alike, that, although their forms were far from simple, the naked eye could barely discern a difference between them.

V. The number of examples of similar morbid changes which I have seen in corresponding right and left joints is greater than it can be necessary to detail. I shall therefore mention only three others, in which the symmetry is particularly well marked, and of which preparations have been made. These are the femora and patellæ of the same subject, on the cartilages of each of which the gouty secretion of urate of soda is deposited in the same quantity, and the same irregular form; two humeri, on each of which uneven-knobbed growths of bone of the same form and general characters rise up by the sides of the bicipital groove; and two femora and two patellæ, from which exactly corresponding parts of the cartilage have been removed, and of which precisely similar portions have acquired the peculiar porcelain-like surface.

VI. I have made a preparation of the two hind legs of the same dog, on each of which the femora, patellæ, and other bones exhibit exactly similar growths, of a coral-like exostosis.

VII. Another preparation exhibits the two ovaries of a woman from whom a carcinomatous breast had been removed some years before death. Both of them are occupied by large growths of cancerous hardness, and exactly alike in size, form, and all other characters. And I have lately met with a similarly symmetrical development of small carcinomatous tubercles in the ovaries of a woman who died of carcinoma of the gall-bladder.

In advancing these few facts as the chief, though not the only evidence for the existence of such a law as that which is supposed, it must be remarked that each of them involves a coincidence of two events, and a coincidence so exact that, if often repeated, it is impossible to imagine it to be the result of chance. It is obvious that, if there be no such law, the

probabilities are greatly against any slight disease ever occurring coincidently on two exactly corresponding parts of the body, and leading to exactly the same results in each of them. I do not deny that such an accidental coincidence may happen, and probably an example of it was presented in two exactly similar bands of adhesion which I once found passing from the surface of each lung to the corresponding part of the third rib on each side. Still the chances are almost infinitely against such a coincidence occurring several times in a limited number of cases. But, on the other hand, it is not at all improbable that, although such a law may exist, the numerous disturbing forces to which the economy of the living body is subject may commonly, or even most frequently, prevent the law from having effect. It is, indeed, only reasonable to suppose that such a law would be more often evaded than followed, for its observance requires the exact concurrence of a great number of delicate processes, each of which is liable to be interfered with by accidents, whose number is incalculable, and of whose mode and extent of operation we are ignorant. This being the case, a single example of symmetry must be of much more weight to affirm the existence of a law of symmetry than a hundred, in which it is absent, are to deny it.

If therefore there were no other facts than those already related, I think the symmetry of certain diseased processes should be regarded as the result of a general law. But the evidence of these facts is corroborated by many others which, though separately less remarkable, are, when taken together, scarcely less conclusive. For, to establish a law of symmetry in disease, it is not essential that all the facts adduced should be examples of exact similarity in the results of the morbid processes on each side of the body, since a great number of examples of general, or even of slight, resemblance could not happen by chance. I could add to the instances of symmetry in the chronic diseases of joints already mentioned many others, only rather less perfect than they are. A resemblance more or less exact in the chronic diseases of corresponding bones is also not unfrequently observed ; and the fact that the bones of the lower extremities of those who have had

rickets are almost always similarly curved is a proof that those of both sides were affected in an equal degree, and therefore yielded equally under the pressure of the body. It has been often observed—and it is true—that the transparent cysts so commonly found on the choroid plexuses are symmetrical in form and arrangement; and I have often seen an equal resemblance in opaque spots with the Pacchionian glands, as they are called, in the pia mater covering the hemispheres of the brain. I may also refer to the general similarity of the diseased changes in the two kidneys and the two ovaria, in most of the cases in which they are both affected, and to the occasional, though rare, occurrence of equal degrees of phthisical degeneration, and of pneumonia in both lungs. But the most remarkable example of a general resemblance in the results of disease on the two sides of the body is furnished by the admirable researches of M. Bizot,* which I have in several cases been able fully to confirm. He found that in 2171 cases of yellow spots in the arteries, a symmetry of the morbid changes was wanting only sixty-two times; that in 659 cases of lesions consecutive to such spots, it was wanting only fifty-one times; and that many of even these few exceptions were connected with an absence of symmetry in the affected arteries, or some similar modifying circumstance.

I have selected the evidence for the law of symmetry in general diseases from facts of morbid anatomy, because a similarity in the *results* of two diseased processes affords much more reason to believe that those processes were the same in kind and equal in degree than can be afforded by a similarity of symptoms. There can be no doubt that the signs of disease in the cases detailed, if they were at all appreciable, were the same on each side of the body; but there are some affections whose symptoms are more remarkable than their permanent consequences, and of these many afford evidence in favour of a law of symmetry. Such are the cases in which gout and rheumatism pass by metastasis from one part of the body to

* "Recherches sur le Cœur et le Système Artériel" ('*Mém. de la Société Médicale d'Observation*,' t. i. p. 408).

the corresponding part on the opposite side, but to no other; cases also in which erysipelas, beginning on the bridge of the nose, pursues a similar course over each side of the face, head, and neck;* inflammations of the tonsils and of the Schneiderian membrane, which often pass rapidly from one side to the other, and of the eyes and testes, in which the same metastasis more rarely occurs, and some others. But the evidence of these similar signs of disease is of less importance than that drawn from similar results, because we cannot accurately appreciate their degree or their nature, and in many of them there is a failure of coincidence in time which, it is probable, did not happen in the first set of cases.

There is yet another class of facts of which the value for my present purpose may be disputed,—those, namely, which relate to changes of structure occurring so commonly in advancing age that they are not usually regarded as the results of disease. Such are the blanching of the hair, baldness, the arcus senilis, the flattening of the cornea, the falling of the teeth, the atrophy of bones, muscles, and other tissues. It may be a question whether these and other changes of the same kind affecting more important organs are not the mere results of regular laws, by which men are late in life as normally degraded towards death as in earlier years they are developed into manhood; but, if they can be taken in evidence on the present subject, they are all strongly confirmatory of the existence of the supposed law; for in a very large majority of cases these changes of function and of structure occur equally and similarly on both sides of the body.

On the whole, then, I think the evidence adduced is sufficient to prove that, when not disturbed from their natural course, all diseases, such as scrofula, secondary syphilis, gout, rheumatism, and others, including all those which are dependent on a morbid condition of the whole economy, or of some part whose influence is felt by all others, such as the blood or the nerves, produce similar local effects in the corresponding parts of the two sides of the body; in other words, that there is the same natural tendency to symmetry in the

* Dr. Graves's Clinical Lecture, 'London Medical Gazette,' Jan. 14th, 1837, and Oct. 20th, 1838.

diseased changes of form and structure as there is in the normal development of the body. The probability of the existence of such a law is very obvious, for it involves nothing more than this—that the same influence exerted on two similar parts will produce in both the same results. That it should have been generally lost sight of must be due to the influence of disturbing causes being so constantly and powerfully exerted on the several portions of the body, that those which are originally formed symmetrical rarely remain exactly so throughout life, and therefore commonly fail to exhibit the same results when the same morbid influence is exerted upon them.

Should the existence of this law be admitted, there is probably no one in science to which the exceptions are so numerous. But its existence can be no objection against the truth of other general laws, in accordance with which a part on one side of the body is more liable to a particular disease than the corresponding part on the other side: as the left lung to phthisis, the right to pneumonia, the left lower extremity to phlegmasia dolens, the left testicle to varicocele, &c. Some of these greater liabilities—the two last mentioned, for example—are probably the consequences of the peculiar anatomical relations of the part most obnoxious to the disease; for the relations of the two common iliac and the two spermatic veins are not the same, and the parts from which they bring the blood are hence (if by no other circumstance) not perfectly symmetrical. For others of these diversities, however, I can imagine no sufficient reason; but it seems very probable that they result not from a natural and innate tendency to disease in the one part more than in the other, but from various influences acting in different degrees upon them both, and so far destroying the exactness of their symmetry of operation, if not of visible form, that when they are both subjected to a common excitant of disease they react differently.

From the facts just cited there appear to me to be at least three different conditions in which diseased changes are symmetrical.

In a first class of cases they are the result of the gradual

degeneration of the tissues in the course of time, or after their functions have ceased, or when, through some general disorder in the economy, the whole body fails of being duly nourished. Such are emaciation, the changes of old age, &c.

In a second class the symmetrical changes are the result of a morbid condition of the blood, in which some new material bears a peculiar chemical or organic relation to the whole or a part of some symmetrically arranged tissue or organ, so that when they come in contact the mode of nutrition in the tissue is altered, or the new material is deposited in it. These changes are symmetrical, because the same morbid material acts similarly with all similar substances. They are symmetrical and general, when the whole of the seemingly similar tissue has really the very same structure and other properties. But, more commonly, they are symmetrical and local, because the corresponding parts on the opposite sides of the body are the only parts in which the symmetry is, in respect of every property of the tissue, perfect. To this class belong the rheumatic, gouty, scrofulous, tuberculous, cancerous, medullary, and some other symmetrical diseases.

In a third class the symmetrical changes are the consequences of diseases passing by metastasis from one part to the exactly corresponding part on the opposite side. In some of these a morbid condition of the blood exists, in others it probably does not. In all, I believe that the influence which determines the situation occupied by the diseased process after metastasis is one conveyed from the part first affected through its nerves (which are in a state of morbid organic excitement) to the nervous centres, and thence reflected and conveyed through *its* nerves to the part secondarily diseased. To this class must be referred the metastatic affections of the eyes, tonsils, testes, and probably some cases of rheumatism and gout.

ON

DISEASE OF THE MAMMARY AREOLA

PRECEDING

CANCER OF THE MAMMARY GLAND.*

I BELIEVE it has not yet been published that certain chronic affections of the skin of the nipple and areola are very often succeeded by the formation of scirrhous cancer in the mammary gland. I have seen about fifteen cases in which this has happened, and the events were in all of them so similar that one description may suffice.

The patients were all women, various in age from forty to sixty or more years, having in common nothing remarkable but their disease. In all of them the disease began as an eruption on the nipple and areola. In the majority it had the appearance of a florid, intensely red, raw surface, very finely granular, as if nearly the whole thickness of the epidermis were removed; like the surface of very acute diffuse eczema, or like that of an acute balanitis. From such a surface, on the whole or greater part of the nipple and areola, there was always copious, clear, yellowish, viscid exudation. The sensations were commonly tingling, itching, and burning, but the malady was never attended by disturbance of the general health. I have not seen this form of eruption extend beyond the areola, and only once have seen it pass into a deeper ulceration of the skin after the manner of a rodent ulcer.

In some of the cases the eruption has presented the characters of an ordinary chronic eczema, with minute vesications, succeeded by soft, moist, yellowish scabs or scales, and constant viscid exudation. In some it has been like psoriasis, dry, with a few white scales slowly desquamating;

* From 'St. Bartholomew's Hospital Reports,' vol. x., 1874.

and in both these forms, especially in the psoriasis, I have seen the eruption spreading far beyond the areola in widening circles, or, with scattered blotches of redness, covering nearly the whole breast.

I am not aware that in any of the cases which I have seen the eruption was different from what may be described as long-persistent eczema, or psoriasis, or by some other name, in treatises on diseases of the skin; and I believe that such cases sometimes occur on the breast, and after many months' duration are cured, or pass by, and are not followed by any other disease. But it has happened that in every case which I have been able to watch, cancer of the mammary gland has followed within at the most two years, and usually within one year. The eruption has resisted all the treatment, both local and general, that has been used, and has continued even after the affected part of the skin has been involved in the cancerous disease.

The formation of cancer has not in any case taken place first in the diseased part of the skin. It has always been in the substance of the mammary gland, beneath or not far from the diseased skin, and always with a clear interval of apparently healthy tissue.

In the cancers themselves, I have seen in these cases nothing peculiar. They have been various in form; some acute, some chronic, the majority following an average course, and all tending to the same end; recurring if removed, affecting lymph-glands and distant parts, showing nothing which might not be written in the ordinary history of cancer of the breast.

The single noteworthy fact found in all these cases is that which I have stated in the first sentence, and I think it deserves careful study. For the sequence of cancer after the chronic skin-disease is so frequent that it may be suspected of being a consequence, and must be always feared, and may be sometimes almost certainly foretold. I believe that a nearly similar sequence of events may be observed in other parts. I have seen a persistent "rawness" of the glans penis, like a long-enduring balanitis, followed after more than a year's duration by cancer of the substance of the glans. A chronic

soreness or irritation (of whatever kind) on the surface of the lower lip often long precedes cancer in its substance; and, with a frequency surpassing all other cases of the kind, the superficial syphilitic diseases of the tongue are followed, and not superseded, by cancers which do not always appear to commence in a diseased part of the tongue.

For an explanation of these cases it may be suggested that a superficial disease induces in the structures beneath it, in the course of many months, such degeneracy as makes them apt to become the seats of cancer; and that this is chiefly likely to be observed in the cases of those structures which appear to be, naturally, most liable to cancer, as the mammary gland, the tongue, and the lower lip. One may suspect that similar surface-irritation has much to do with the frequency of cancer of the rectum, pylorus, and ileo-cæcal valve, in any of which parts the degeneracy, which might come naturally in old age and make them apt for cancer, may be hastened, and made prematurely sufficient, by an adjacent disturbance of nutrition.

In practice, the question must be sometimes raised whether a part through whose disease or degeneracy cancer is very likely to be induced should be removed. In the member of a family in which cancer has frequently occurred, and who is at or beyond middle age, the risk is certainly very great that such an eruption on the areola as I have described will be followed within a year or two by cancer of the breast. Should not, then, the whole diseased portion of skin be destroyed or removed as soon as it appears incurable by milder means? I have had this done in two cases, but, I think, too late. Or, again, when one with a marked family-liability to cancer has syphilitic disease of the mucous membrane of the tongue, with frequent recurrences of inflammation, should not all the worst pieces of the membrane be removed? I should certainly advise it, especially if the membrane was ichthyotic, if it were not that the disease is commonly so extensive that good scar-tissue would not be likely to be formed, and that bad scar-tissue, often irritable and ulcerating, is as likely to induce cancer as the syphilitic or ichthyotic patches would have been.

ON A FORM OF

CHRONIC INFLAMMATION OF BONES

(OSTEITIS DEFORMANS).*

I HOPE it will be agreeable to the Society if I make known some of the results of a study of a rare disease of bones.

The patient on whom I was able to study it was a gentleman of good family, whose parents and grandparents lived to old age with apparently sound health, and among whose relatives no disease was known to have prevailed. Especially, gout and rheumatism, I was told, were not known among them; but one of his sisters died with chronic cancer of the breast.

Till 1854, when he was forty-six years old, the patient had no sign of disease, either general or local. He was a tall, thin, well-formed man, father of healthy children, very active in both mind and body. He lived very temperately, could digest, as he said, anything, and slept always soundly.

At forty-six, from no assigned cause, unless it were that he lived in a rather cold and damp place in the North of England, he began to be subject to aching pains in his thighs and legs. They were felt chiefly after active exercise, but were never severe; yet the limbs became less agile, or, as he called them, "less serviceable," and after about a year he noticed that his left shin was misshapen. His general health was, however, quite unaffected.

I first saw this gentleman in 1856, when these things had been observed for about two years. Except that he was very

* Read before the Royal Medico-Chirurgical Society of London, November 14th, 1876.

grey and looked rather old for his age, he might have been considered as in perfect health. He walked with full strength and power, but somewhat stiffly. His left tibia, especially in its lower half, was broad, and felt nodular and uneven, as if not only itself but its periosteum and the integuments over it were thickened. In a much less degree similar changes could be felt in the lower half of the left femur. This limb was occasionally, but never severely, painful, and there was no tenderness on pressure. Every function appeared well discharged, except that the urine showed rather frequent deposits of lithates. Regarding the case as one of chronic periostitis, I advised iodide of potassium and liquor potassæ; but they did no good.

Three years later I saw the patient with Mr. Stanley. He was in the same good general health, but the left tibia had become larger, and had a well-marked anterior curve, as if lengthened while its ends were held in place by their attachments to the unchanged fibula. The left femur also was now distinctly enlarged, and felt tuberous at the junction of its upper and middle thirds, and was arched forwards and outwards, so that he could not bring the left knee into contact with the right. There was also some appearance of widening of the left side of the pelvis, the nates on this side being flattened and lowered, and the great trochanter projecting nearly half an inch further from the middle line. The left limb was about a quarter of an inch shorter than the right. The patient believed that the right side of his skull was enlarged, for his hats had become too tight; but the change was not clearly visible.

Notwithstanding these progressive changes, the patient suffered very little; he had lived actively—walking, riding, and engaging in all the usual pursuits of a country gentleman—and, except that his limb was clumsy, he might have been indifferent to it. He had taken various medicines, but none had done any good; and iodine, in whatever form, had always done harm.

In the next seventeen years of his life I rarely saw him, but the story of his disease, of which I often heard, may be briefly told, and with few dates, for its progress was nearly

uniform and very slow. The left femur and tibia became larger, heavier, and somewhat more curved. Very slowly those of the right limb followed the same course, till they gained very nearly the same size and shape. The limbs thus became nearly symmetrical in their deformity, the curving of the left being only a little more outward than that of the right. At the same time, or later, the knees became gradually bent, and, as if by rigidity of their fibrous tissues, lost much of their natural range and movement.

The skull became gradually larger, so that nearly every year, for many years, his hat and the helmet that he wore as a member of a Yeomanry Corps needed to be enlarged. In 1844 he wore a shako measuring twenty-two and a half inches inside; in 1876 his hat measured twenty-seven and a quarter inches inside (Pl. I., fig. 4). In its enlargement, however, the head retained its natural shape, and to the last looked intellectual, though with some exaggeration.

The changes of shape and size in both the limbs and the head were arrested, or increased only imperceptibly, in the last three or four years of life.

The spine very slowly became curved and almost rigid. The whole of the cervical vertebræ and the upper dorsal formed a strong posterior, not angular, curve; and an anterior curve of similar shape was formed by the lower dorsal and lumbar vertebræ. The length of the spine thus seemed lessened, and from a height of six feet one inch he sank to about five feet nine inches. At the same time the chest became contracted, narrow, flattened laterally, deep from before backwards, and the movements of the ribs and of the spine were lessened. There was no complete rigidity, as if by union of bones, but all the movements were very restrained, as if by shortening and rigidity of the fibrous connections of the vertebræ and ribs.

The shape and habitual posture of the patient were thus made strange and peculiar. His head was advanced and lowered, so that the neck was very short, and the chin, when he held his head at ease, was more than an inch lower than the top of the sternum.

The short narrow chest suddenly widened into a much

shorter and broad abdomen, and the pelvis was wide and low. The arms appeared unnaturally long, and, though the shoulders were very high, the hands hung low down by the thighs and in front of them. Altogether, the attitude in standing looked simian, strangely in contrast with the large head and handsome features.*

All the changes of shape and attitude are well shown in sketches from photographs taken six months before death (see Pl. I., figs. 1 to 3). Only the lowering of the necks of the femora is not shown. In measurement after death the axes of the shaft and neck of the right femur formed an angle of only 100° instead of 120° or 125°, and this change of shape added to the appearance of increased width of the pelvis.

But with all these changes in shape and mobility of the head, spine, and lower limbs, the upper limbs remained perfect, and there was no disturbance of the general health.

In 1870, when the disease had existed sixteen years, the left knee-joint was for a time actively inflamed, and its cavity was distended with fluid. But the inflammation soon subsided, only leaving the joint stiffer and more bent.

About this time some signs of insufficiency of the mitral valve were observed, but the patient now lived so quietly, and moved with so little speed, that this defect gave him no considerable distress.

In December, 1872, sight was partially destroyed by retinal hæmorrhage, first in one eye, then in the other,† and at nearly the same time he began to be somewhat deaf. In the summer of 1874 he had frequent cramps in the legs, and neuralgic pains, which were described as "jumping over all the upper

* An attitude somewhat similar is given by a rare form of what I suppose to be general chronic rheumatic arthritis of the spine involving its articulations with the ribs. The spine droops and is stiff, the chest is narrow, the ribs scarcely move, the abdomen is low and broad, but there is no deformity of head or limbs.

† Mr. Brudenell Carter saw him in January, 1873, and observed "the right retina sprinkled with small dots of arterial hæmorrhage, chiefly in parts remote from the centre"; and "there was no other change." The left retina was at this time healthy, but in February Dr. Clifford Allbutt found "several little plugs" in its vessels.

part of the body except the head," but change of air seemed to cure them.

In January, 1876, he began to complain of pain in his left forearm and elbow, which, at first, was thought to be neuralgic. But it grew worse, and swelling appeared about the upper third of the radius and increased rapidly, so that, when I saw him in the middle of February, it seemed certain that a firm medullary or osteoid cancerous growth was forming round the radius.

Still the general health was good. Auscultation could detect mitral disease, but the appetite and digestion were unimpaired, the urine was healthy, the mind as clear, patient, and calm as ever. As letters about him at this time said, "his general health has been excellent"; "he is free from pain except in the left arm; he sleeps well, enjoys himself, and does not know what a headache is."

After this time, however, together with rapid increase of the growth upon the radius, there were gradual failure of strength and emaciation, and on the 24th of March, after two days of distress with pleural effusion on the right side, he died.

The body was examined five days after death, and showed no marked signs of decomposition. As it lay on a flat board its posture was remarkable, for the head was upraised to the level of the sternum, being supported by the rigid and arched spine, and the lower limbs, with the knees bent and stiff, rested on the heels and nates.

The pericranium, dura mater, and all the substance of the brain appeared healthy.

The right pleural cavity contained at least a pint of pale serous fluid, with flakes and strings of inflammatory exudation. The lung was compressed, and in its pleural covering were numerous small nodular masses of pale cancerous substance. The proper pulmonary structure appeared healthy, and so did the left lung and its pleura, except that in the pleura and anterior mediastinum there were many small masses of cancer.

The heart was enlarged, but thin-walled. The tricuspid and pulmonary valves and artery were healthy; the mitral

valve was opaque, contracted, stiffened with atheromatous and calcareous deposits.

The aortic valves were slightly opaque but pliant, and both in them and in the first part of the aorta were numerous small patches of atheroma.

The liver and digestive canal and kidneys, examined externally, appeared healthy.

The right femur, the left tibia, the patellæ, and the upper part of the skull, were taken for separate examination, and will be separately described.

In the other bones of the skeleton, except the left radius, no signs of disease appeared externally, but I regret that they were not all more carefully examined, for I think that, at least in the clavicles and pelvis, some changes like those in the long bones of the lower limbs would have been found.

The upper third of the left radius was involved in a large ovoid mass of pale grey and white soft cancerous substance, similar to that of the nodules in the pleuræ and mediastinum, but with growths of bone extending into it. The rest of the radius and the ulna appeared quite healthy.

Some nodules of similar cancerous substance were imbedded in the bones of the vault of the skull.

Microscopic sketches of these structures by Mr. Butlin are appended (Plate II., figs. 1–3).

The curvatures of the spine and its rigidity appeared due to shortening and hardening of its fibrous structures. The vertebræ appeared healthy; there was no appearance of overgrowth or anchylosis among them.

In no part, whether near or far from the diseased bones, was there an indication of any change of structure in skin, muscle, tendon, or fascia; but in the right hip-joint and in the left knee-joint there was some thinning and wasting of articular cartilage, such as one sees in chronic rheumatic arthritis. The other hip- and knee-joints and both ankle-joints were healthy.

In the arteries of the lower limbs there was extensive atheromatous and calcareous degeneration.

The enlargement of the skull may be estimated by comparison of the following measurements:—

	Diseased skull.	Average skull.
Circumference at the level of the middle of the temporal fossa	26½ in.	21 in.
From occipital spine to base of nasal bones .	15 in.	13¼ in.
From mastoid to mastoid process . . .	18½ in.	15¼ in.

All the sutures, at least all those of the vertex, were obliterated. The outer surface of the upper part of the skull was lowly bossed by the predominant thickening of the hinder part of the parietal bones. The thickness was in every part increased to the extent shown in these following measurements.

In a median vertical section the thickness of the frontal bone was			11–13	lines.
,,	,,	,, parietal	,,	14–16 ,,
,,	,,	,, occipital	,,	8–12 ,,
In a horizontal section, through the middle of the temporal fossa, the thickness of the frontal bone was . . .			8–9	,,
,,	,,	temporal ,, . . .	6–9	,,
,,	,,	at their junction	2	,,
,,	,,	of the occipital bone was . .	10–12	,,

Comparing these measurements with those of average healthy skulls, it may be said that the bones of the vault of this skull were in every part increased to about four times the normal thickness.

The whole outer surface of the skull-cap was finely porous; in the least changed parts, such as the squamous bone, perforated with innumerable apertures for blood-vessels; in the most changed, finely reticulate, as with delicate cancellous and medullary texture.

The inner surface was comparatively smooth, and appeared little changed, except by the enlargement of all channels and apertures for blood-vessels, and especially by the deepening of all the grooves for the middle meningeal artery and its branches.

On the cut surface, in the median vertical section, that which might be regarded as the altered internal table of the skull was a layer, having a very unequal thickness varying from two to six lines, consisting of hard white bone, close-textured, in some parts porous or finely reticulate, in more looking compact and dense like limestone or white brick (Pl. V.).

The rest of the thickness of this part of the skull, representing probably the altered diploë and outer table, was made up of bone in various degrees porous, cancellous, or cavernous, with spaces filled with soft reddish substance, a kind of medulla. Its surface was covered with a very thin layer, a mere coating of more finely porous bone.

In the horizontal section, at the level of the upper part of the squamous bone, the same altered characters were observable, but a larger proportion of the substance of the skull was finely porous or reticulate.

By the cavities in the skull-cap in which cancerous growths were lodged, the structure of the bone was neither more nor less altered than in other parts.

A portion of sphenoid bone showed changes of structure very similar to those already described, but with a much more uniform and regular finely porous condition.

The bones of the face were not uncovered, but they showed, neither to sight nor touch, any appearance of disease; not a feature was unnatural.

The conditions of all the long bones were so similar that one description may serve for the altered structure of both femora and tibiæ.*

The periosteum was not visibly changed, not thicker or more than usually adherent.

The outer surface of the walls of the bones was irregularly and finely nodular, as with external deposits or outgrowths of bone, deeply grooved with channels for the larger periosteal blood-vessels, finely but visibly perforated in every part for transmission of the enlarged small vessels. Everything seemed to indicate a greatly increased quantity of blood in the vessels of the bone.†

The medullary structures appeared to the naked eye as little changed as the periosteum. The medullary spaces were filled with soft, yellow, ruddy, and bright crimson medulla, of apparently healthy consistence. The medullary

* Their changes are shown in Pl. IV. The specimens are in the Museums of the Royal College of Surgeons and of St. Bartholomew's Hospital.

† But see p. 209 in the account of the microscopic examination.

laminæ and cancelli had a normal aspect and arrangement, and in the shafts of the long bones the medullary spaces were not encroached upon.

The compact substance of the bones was, in every part, increased in thickness. Taking, for example, the femur, the thicknesses of its walls and those of a healthy femur of about the same length and age are compared in the following tables.

	Healthy.	Diseased.
	Lines.	Lines.
Thickest parts of the wall	3–6	6–10
Articular covering of head, about . . .	$\frac{1}{4}$	3–10
Wall of neck, about	$\frac{1}{4}$–3	4–6
Wall of the trochanter major, about . .	$\frac{1}{4}$–$\frac{1}{2}$	3–5
Articular covering of the condyles, about .	$\frac{1}{4}$–$\frac{1}{3}$	3–5
Lateral walls of the condyles	$\frac{1}{6}$–$\frac{1}{4}$	2 and more

Changes in similar proportions were found in the walls of the tibia. In the patellæ the walls were from three to five lines thick.

The thickening of the walls of the shafts of the bones appeared due chiefly to outward expansion and some superficial outgrowth. In some places there were faint appearances of separation of parts of the outer layers of the walls, and of these becoming thick and porous, while the corresponding parts of the inner layers were less changed; but in the greater part of the walls the whole construction of the bone was altered into a hard, porous, or finely reticulate substance, like very fine coral. In some places, especially in the walls of the femur, there were small ill-defined patches of pale, dense, and hard bone, looking as solid as brick.

In the compact covering of the articular ends of the long bones, and in those of the neck and great trochanter of the femur, and in the patellæ, the increase of thickness was due to encroachment on the cancellous texture, as if by filling of its spaces with compact porous, new-formed bone.

Mr. Butlin was so good as to make careful microscopic examination of the diseased bones, and to give me the following report on them, together with the annexed drawings of their minute structure.

"Microscopical examination was made of sections cut from

the skull and from the tibia, some of them from the recent bones, but the majority of them from portions of bone deprived of earthy salts, and rendered sufficiently soft to be cut with a razor. The appearances observed were essentially the same in both bones, but most of the drawings and description were taken from the tibia, the sections of which were much clearer than those of the skull.

"The examination was conducted from a twofold point of view: first, to discover the changes which the bone had undergone; second, to discover, if possible, the nature of the process which had led to such changes.

"With a low power the number of Haversian systems and canals in any given section was seen to be much diminished (Plate II., fig. 8; Plate III., fig. 9). The space between the Haversian canals was occupied by ordinary bone-substance, containing numerous lacunæ and canaliculi. The Haversian canals were enormously widened, many of them were confluent, and thus the appearance of a number of communicating medullary spaces was obtained, an appearance which was rendered still more striking by the presence in the canals of a large quantity of ill-developed tissue in addition to the blood-vessels (Plate II., figs. 4–6). With a high power the contents of the Haversian canals were seen to consist generally of a homogeneous or granular basis, containing cells of round or oval form, about the size and having much the appearance of leucocytes. Larger nucleated cells were also present, and fibres or fibro-cells, sometimes in considerable quantity. Myeloid cells were occasionally observed, but they were not plentiful; fat also existed in many of the larger spaces, especially in the skull. The vessels were usually small compared with the channels in which they ran; indeed, they did not seem to be much larger than those of normal bone (Plate II., fig. 6). The walls of some of the canals were lined by a single layer of osteoblasts, a condition precisely similar to that observed in the normal ossification of bone in membrane. The presence of new bone was most evident in the periosteum of the tibia, external to the ordinary compact layer of the shaft (Plate II., fig. 7). This external layer was, of course, but thin, and was much softer and less developed

than the cortex of the bone from which it sprung; it evidently was not nearly sufficient to account for the great increase in the diameter of the tibia. From the diminution in size of the medullary canal it was thought that a similar recent formation of bone would be found on its outskirts, but this expectation was not justified by observation.

"With a medium power the number of (Plate III., fig. 12) lamellæ surrounding the Haversian canals was easily seen to be not larger than in normal bone, whilst the arrangement of the intervening space was most complex, and totally different from that of healthy bone. The lacunæ and canaliculi throughout the sections did not strikingly differ from those of ordinary bone."

I am indebted to Dr. Russell for the following chemical analysis of portions of the diseased skull and tibia, and of a healthy tibia in comparison with them.

	Skull.	Tibia.	Normal tibia.
Inorganic constituents (Ash) . . .	60·59	61·22	63·62
Organic ,, ...	39·41	38·78	36·38
Phosphoric acid (P_2O_5)	22·76	25·45	25·50
Carbonic ,, (CO_2)	3·59	3 95	3·59
Fat	6·83	3·45	—
Moisture in the sample (dried at 115° C.)	15·49	11·83	9·73
The CO_2 calculated as calcium carbonate ($CaCO_3$)	8·17	8·99	8·16
The P_2O_5 calculated as calcium phosphate ($Ca_3 2PO_4$)	49·70	55·56	55·66
Specific gravity . . .	1·895	1·889	1·886*

Cases of the disease which I have described are so rare that I believe no one has seen a sufficient number of them to enable him to distinguish this disease, either clinically or anatomically, from some which seem like it. Specimens illustrating it are commonly included under a general name of hyperostosis, osteoporosis, senile rachitis, or the like. But I hope that, if I add to the description I have just given some notes of similar cases which I have seen or found on

* Specific gravity of normal skull 1·990.

record, the disease may be so distinguished as to deserve in pathology a separate place and name.

Case 2.—Some ten years ago I saw a gentleman, between fifty and sixty, very active, tall, thin, and muscular, a master of hounds. For many years before his death he had curvature of the thighs and legs, exactly like that already described, and stooping of the spine. The changes of the limbs were attended with severe pains, which he used to relieve with hard rubbing, but the general health was unimpaired. In the last years of his life the upper part of his right humerus became very large, and as he was riding and suddenly raised his arm the bone broke near the shoulder. The evidence of a large tumour now became clear, and I amputated the arm at the shoulder-joint. The tumour was a well-marked and very vascular medullary cancer investing and infiltrating the upper part of the humerus. The rest of the humerus was healthy, and the fracture, which was just below its neck, was evidently due to muscular force acting on its structures spoiled by the cancerous growth. He died a few days after the operation, but was not examined after death. The similarity of his case with that which I have described is, I think, certain.

Case 3.—I saw, with the late Dr. Brinton, a gentleman between forty and fifty who may be still living. He was a sturdy and quite healthy man; his tibiæ were curved and enlarged exactly like those in the first case, and he had similar pains, but there was more thickening of periosteum and an appearance of more external formation of bone. He was treated with iodide of potassium and many other things as for periostitis, but without avail.

Case 4.—A case is recorded by Dr. Wilks in the 'Transactions' of the Pathological Society,* and through the kindness of Sir William Gull, whom the patient occasionally consulted, I am enabled to add some facts to those in Dr. Wilks's report, and to show photographic portraits.

A summary of Dr. Wilks's report is that the patient was

* Vol. xx, p. 273, 1869.

sixty when he died. Signs of the disease, beginning with pains like those of rheumatism in the legs, were first observed fourteen years before his death. It was soon found that the tibiæ were enlarged, and in subsequent years the cranium and nearly all the bones of the skeleton underwent similar changes. About a year before death the general health began to suffer from the thorax having become implicated in the disease. Gradually the chest became more contracted, and at last quite fixed; the breathing became more difficult, until at last the respiratory apparatus altogether stopped.

Sir William Gull's notes tell that the patient consulted him when fifty-six years old, and said that he first noticed enlargement in the left tibia when he was forty-five years old; that he had seven brothers well and strong, and was eldest in the family. He complained chiefly of weakness, inability to make exertion, feeling of nervousness with occasional vertigo, shortness of breath, stiffness in neck, hoarseness, and feebleness of voice. His general health was good; he was not much troubled with pain anywhere; but had occasional strange sensations about the head, and much cough. His height, when a young man, was five feet three and a half inches, now four feet eleven and a half inches. The urine was normal and of normal colour. The cranium was enlarged and thickened; the clavicles much thickened, as also the long bones; the phalanges and facial bones, and perhaps the lower jaw, were not altered. The ribs were thick and immovable, as was also the sternum. There was general dulness over the chest on percussion. The respiration was chiefly diaphragmatic.

Less than a year before the patient's death Sir William Gull recorded that he was breathless, and had occasional attacks of mental confusion, in which he remarked that he could not understand the sense of words. His voice was hoarse and feeble, and the hyoid bone seemed thickened. The head had continued to enlarge, and he maintained that he was still losing in height. The neck was fixed, and somewhat forward. All the viscera appeared normal. The urine, repeatedly examined, was always found normal, and of normal colour.

The record of the post-mortem examination by Dr. Goodhart leaves no doubt that the disease in this case was the same as that which I have described, and it may be important that this patient also had cancerous disease. "A growth . . . . corresponding to the growth described as epithelioma of the arachnoid surface of dura mater," grew from the inner surface of the dura mater, was as large as a chestnut, and made a pit in the brain near the left Sylvian fissure.

The description of the changed structure of the bones, for which I may refer to the 'Pathological Transactions,' seems to me to indicate that the disease was more advanced in the direction of degeneracy than that which I have described, or that it had not been in any degree repaired.

Case 5.—I owe to Mr. Bryant the opportunity of seeing a similar case which was under his care in Guy's Hospital, and of which Mr. Viney was so good as to give me notes.

The patient was a carpenter, sixty years old, a hard-working married man, and had seven children. When about sixteen years old he had a slight attack of gonorrhœa, but without sores, and no history of syphilis could be learned. When thirty-five years old he received an injury to his pelvis. Shortly after this he had trouble with his bladder, which become much distended; a large quantity of clotted blood was washed out. He lay in bed for this six weeks, and at the end of three months was able to go to work again.

For the last five years he had been troubled with gout in his left great toe. His father suffered from this. The attacks had been short; a few days' rest always sufficed for recovery.

About three years before admission he first felt pains of a shooting description about the tendons of the popliteal space, whenever he straightened his legs. At this time also he first noticed a swelling of the legs, which began at the ankles. These symptoms, without his taking any special notice of them, continued for about a year.

In the last year and a half the tibiæ had become much swollen and curved forwards, and on account of the pain he had in them from standing he had been obliged to give up his regular work. Until admission he did not notice any-

thing wrong with his other bones, but he had lost about half an inch in height.

The tibiæ presented a marked curve forwards. The anterior border of each was rounded to a very marked degree, so that it could not be felt at all distinctly. The right tibia was slightly larger than the left. The inner surface of each measured about four inches at its widest part. The veins above the ankle were in a varicose condition.

The fibulæ were very much enlarged; the femora enlarged in their shafts and bowed outwards. The great trochanter was drawn up to the level of a vertical line drawn from the anterior superior spinous process of the ilium to the horizontal line of the body, instead of being about two and a half inches below this line. The patellæ were little larger than natural.

The bones of the upper extremity were enlarged, but not to so marked a degree as those of the lower. The enlargement was most marked in the humeri, and the left was thicker than the right. He could not straighten his arms, probably owing to the enlargement of the olecranon. In the clavicles the natural curves were very much increased and the bones thickened, the left more so than the right. In the scapulæ the spines and acromion processes were very much enlarged.

The chest was slightly flattened from side to side, but moved fairly whilst breathing. The ribs on the right side were slightly larger than those on the left.

There was a general curve backwards from the cervical to the dorsal vertebræ, so that the patient's usual position in bed was with his head bent forwards, and his legs in a semi-extended position.

The bones of the hands and feet did not seem to have shared in the general thickening.

There seemed to be a slight thickening about the external protuberance of the occipital bone, but there was no other evidence of the cranial bones being involved.

The patient had cold perspirations over his legs in the evening. His urine had a specific gravity of 1014, was strongly acid, contained a little albumen, but no excess of phosphates.

[Six months later Mr. Bryant told me that this patient's

bones were still enlarging, and that there were evidences of enlargement of the skull.]

I have looked for records of cases similar to these in nearly every work that seemed likely to contain them, but in vain. I have found only three cases, and the first two of these are doubtful.

Saucerotte* relates the case of a man who died at forty, and in whom all the bones, those of the head, face, orbits, ribs, vertebræ, and limbs, had begun to enlarge about seven years before death. He increased in weight from 119 livres to 168, wholly from increase of bones; he had rheumatic pains; for a time sleepiness, oppression at the chest, and very small pulse; but these passed by, and he died with some acute illness. No examination was made.

Rullier† tells of a man, aged seventy-eight, who died in the Hôtel Dieu of empyema. He had previously been in good health, and nothing had indicated any derangement of cerebral function. The skull was very large, osteoporotic, and heavy, and, except the lower jaw, all the bones of the face were healthy. The ribs were thicker and larger than usual; the sternum narrow and very thick; the pelvic bones changed like those of the skull. The clavicles were thick, curved, and solid. The other bones were healthy.

Wrany‡ has fully described the condition of the bones in a case of spongy hyperostosis of the skull, pelvis, and left femur, taken from a woman fifty years old, of whom, however, nothing is told but that she died of pyæmia, and that she had "spongy hyperostosis of the skull with atrophy of the facial skeleton, spongy hyperostosis of the vertebral column, pelvis, and left femur, with elongation of the latter bone; kyphoscoliosis of the upper dorsal part of the spine; pelvic abscess; emphysema and œdema of both lungs, abscess of the left; marasmus."

I cannot doubt that this disease was the same as I have here described, and the paper is valuable, both for the many

* 'Mélanges de Chirurgie,' Paris, 1801.

† 'Bulletin de l'Ecole de Médecine de Paris,' t. ii, p. 94, 1812.

‡ 'Prager Vierteljahrschrift,' 1867, B. i, p. 79.

signs indicated in it that the bones softened and yielded to pressure in the early part of the disease, and for the careful comparison of the distortion of the pelvis with the dissimilar distortions in rickets and mollities ossium. The spine was very curved; the chest small and too arched; the whole trunk very short.

From these cases, which, though few, are well marked, and in some chief points uniform, as well as from a recollection of two more of which I have no notes, I think we may believe that we have to do with a disease of bones of which the following are the most frequent characters:—It begins in middle age or later, is very slow in progress, may continue for many years without influence on the general health, and may give no other trouble than those which are due to the changes of shape, size, and direction of the diseased bones. Even when the skull is hugely thickened, and all its bones exceedingly altered in structure, the mind remains unaffected.

The disease affects most frequently the long bones of the lower extremities and the skull, and is usually symmetrical. The bones enlarge and soften, and those bearing weight yield and become unnaturally curved and misshapen. The spine, whether by yielding to the weight of the overgrown skull, or by change in its own structures, may sink and seem to shorten with greatly increased dorsal and lumbar curves; the pelvis may become wide; the necks of the femora may become nearly horizontal, but the limbs, however misshapen, remain strong and fit to support the trunk.

In its earlier periods, and sometimes through all its course, the disease is attended with pains in the affected bones, pains widely various in severity, and variously described as rheumatic, gouty, or neuralgic, not especially nocturnal or periodical. It is not attended with fever. No characteristic conditions of urine or fæces have been found in it. It is not associated with syphilis* or any other known constitutional disease, unless it be cancer.

In three out of the five well-marked cases that I have seen

* There has not only been no history of syphilis in any of the cases, but no known syphilitic changes have been observed in any patient.

or read of, cancer appeared late in life; a remarkable proportion, possibly not more than might have occurred in accidental coincidences, yet suggesting careful inquiry.*

The bones examined after death show the consequences of an inflammation affecting, in the skull the whole thickness, in the long bones chiefly the compact structure, of their walls, and not only the walls of their shafts, but, in a very characteristic manner, those of their articular surfaces.

The changes of structure produced in the earliest periods of the disease have not yet been observed, but it may certainly be believed that they are inflammatory, for the softening is associated with enlargement and with excessive production of imperfectly developed structures, and with increased blood-supply. Whether inflammation in any degree continues to the last, or whether, after many years of progress, any reparative changes ensue, after the manner of a so-called consecutive hardening, is uncertain.

The inflammatory nature of the disease is evident also in the changes of minute structure in the affected bones.† On these Mr. Butlin writes :—"With regard to the nature of the process by which these changes were accomplished, there are probably only three things which could produce so great an increase in the size of a bone—namely, new growth (tumour), hypertrophy, and chronic inflammation.

"The first of these may be at once set aside as out of the question.

"Nor is the second much more probable than the first, for the process is evidently no mere hypertrophy. The whole microscopical architecture of the bone has been altered; the structure appears to have been almost entirely removed and laid down afresh on a different plan and in a larger mould.

* See also Sandifort, quoted at p. 61; Museum of St. Bartholomew's, ser. i, 111 and 112, sections of a femur, large, curved, porous, with a tumour growing around its shaft; and 49, a hyperostotic skull from a man who died with cancerous disease of the eyeball, heart, and other organs; and Museum of Guy's Hospital, specimens of symmetrical osteoid cancer of the ilia, with cancer of the spine and cranium, associated with hypertrophy of the cranium. Dr. Goodhart was so good as to give me a report of this case.

† And this is also the opinion of Wrany, *l. c.*

"Of the three causes, chronic inflammation alone remains, and upon examination one or two facts will be found to bear strongly upon the theory of this being essentially an inflammatory disease. Not only the absorption of the old structure which has taken place, but also the manner of this absorption, point to its inflammatory nature. Traces of this are not, of course, always discernible, as the process is almost everywhere far advanced. But still, careful observation not uncommonly discovers that the sides of the widened canals, instead of being smooth and even (Plate III., fig. 10), are eaten out in a series of curves or concavities with the production of what are called Howship's lacunæ, so characteristic of inflammation. The tissue contained in the canals, too, almost precisely resembles the tissue found in the spaces of inflamed bones, only differing from it in being generally more fibrillar and less rich in cells, a fact easily to be accounted for by the very long duration of the disease, and the general tendency towards organisation which was displayed throughout. The apparent cessation of the process of absorption, and the gradual process of repair, may be regarded as still further leading towards the same conclusion.

"Further than this, the microscopical observations do not extend."

The chemical analysis by Dr. Russell may be regarded as confirming this conclusion. It shows, at least, that there is no such change of composition in the bone as would be expected in any merely degenerative softening.

Holding, then, the disease to be an inflammation of bones, I would suggest that, for brief reference, and for the present, it may be called, after its most striking character, Osteitis deformans. A better name may be given when more is known of it.

It remains that I should point out the distinctions between this disease and the several forms of hyperostosis, osteoporosis, and other diseases among which it has been confused.*

* Many of the statements here made are derived from the examinations of the collections of diseased bones in the College of Surgeons and St. Bartholomew's Hospital, which I made while writing the catalogues of their pathological museums.

1. Among cases of hyperostosis are included those of simple overgrowth or hypertrophy of bones in adaptation to increase or change of office. The distinction of these from any form of disease is plain enough; they show a mere increase of natural structure.*

2. Scarcely different from these, and as easily distinguished, are the hyperostoses, best seen in the skull, in which the bones have more than normal thickness, hardness, and weight, and marks of greater vascularity, yet preserve a just relation of their several parts and a scarcely changed structure. They probably illustrate the effects of simple inflammation of bone recovered from.†

3. A group of hyperostoses consists of those cases in which bones are enlarged in consequence of an increased supply of blood or lymph. Such a case is that recorded by Dr. Day,‡ in which the bones of a boy's limb with obstructed lymphatics are much longer than those of the sound limb;§ and such are all those in which bones near inflamed joints, or with partial necrosis, or in limbs long hyperæmic, from whatever cause, grow in length and circumference till they considerably surpass the bones of the healthy limb.‖ These are easily distinguished. They have not signs of disease proper to themselves; they occur in the young alone; they may present a healthy texture, or one only slightly changed as by partaking of the adjacent inflammatory process; and, with the exception of the tibia, they do not become deformed. The tibia, when it lengthens more than the fibula, is almost compelled to curvature by the fixed unyielding attachment

* Mus. Coll. Surg., 379, 380, 2838, 2839, 2842, 2843, &c.

† Mus. Coll. Surg., 2840, 2841.

‡ 'Transactions of the Clinical Society,' vol. ii, p. 104, 1869.

§ Broca, 'Des Anévrysmes,' 8vo, p. 76, 1856, gives a case of femoral arterio-venous aneurism attended with considerable elongation of the limb.

‖ I believe these were first described by Mr. Stanley, 'On Diseases of Bones,' p. 20, *et seq.*, and myself, 'Lectures on Surgical Pathology,' p. 64, ed. 3, and in the catalogues already referred to. Langenbeck has published a very interesting paper on them in the 'Berliner Klin. Wochenschrift,' 1869, No. 26. Cases are also cited from Weinlechner, Schott, and Bergmann, in Virchow and Hirsch's 'Jahresbericht für 1869.'

of its ends;* and the curve is usually similar in shape and direction to the curve of the tibia in the osteitis deformans. But there is no other likeness between the two conditions.

4. A very large number of cases of hyperostosis are consequences of inflammations of bone; some of simple inflammation, others of scrofulous, syphilitic, or gouty inflammation. It is not necessary here to distinguish these from each other,† but there are sufficient signs for the distinction of all from the osteitis deformans.

It is clear that the summary which I have given of the clinical characters of this osteitis would not tally with that of any case of simple osteitis, such as might ensue in a healthy person after injury, or in the neighbourhood of a sequestrum; and the clinical difference is as complete between it and any case that could justly be regarded as strumous, or syphilitic, or gouty osteitis.

The anatomical differences are as well marked: chiefly in the facts that in these inflammations the bones do not become curved‡ (unless in the case of the tibia already explained); that they commonly display much more considerable external periosteal outgrowths or deposits, as if from a greater participation of the periosteum in the inflammatory process; that the rarefied, or, it may be, porous structure of the swollen shafts of bones usually shows appearances of separation and expansion of the component layers; that the medullary canals are commonly invaded by the thickening walls, or are as much changed as the walls themselves; that the whole length of a bone-shaft is very rarely affected; and that the thin articular layers of bones are, I believe, never thickened as they are in the osteitis deformans.§

* Such curved tibiæ are in the museum of St. Bartholomew's, Nos. A. 3, A. 46.

† An attempt to do so is made in the pathological catalogue of the College of Surgeons.

‡ The absence of curving in bones round sequestra is remarkable, for they are long and often acutely inflamed, and those of the lower limbs are commonly used and bear weight.

§ Among the specimens in which these changes may be studied are, in the College Museum, Nos. 3085, 3089, 598, 3090, 3091; in the museum at St. Bartholomew's, A. 1, and ser. i, 56, 132, 138, 196–198.

It may be added that it is very improbable that any form or degree of scrofula, or syphilis, or gout should exist in bones or any other textures for ten or more years without affecting other parts, and without impairing the general health. The retention of good general health during many years of localised disease is, indeed, one of the most striking characters of the osteitis deformans. The only parallel known to me is in the rheumatoid or chronic rheumatic arthritis, and the likeness between the two in this respect may suggest that they are nearly related; yet they are not found concurrent. In the case that I have related, the amount of chronic rheumatic arthritis was trivial, and (which is more important) in all the records and specimens of the arthritis which I have seen, I have not found an instance in which there were any of the morbid changes characteristic of the osteitis.*

5. There are, I think, only two other diseases—namely, rachitis and osteomalacia, from which it can be necessary to discriminate the osteitis deformans, and the differences between them are very wide. They have scarcely a feature in common, except that in all of them the bones bearing weight become curved or misshapen, and the spine is usually deformed, and the skull may become very thick and porous. But in rachitis the bones are too short, not too long; too small, not too large; and their curvatures are quite unlike those of the osteitis. And in the osteomalacia the walls of the bones become exceedingly thin, wasting with an acute atrophy; and when they yield it is not with regular curving, but with angular bending or breaking. By these and many other differences, as well clinical as anatomical, the diagnosis of the osteitis from rachitis and osteomalacia is sufficiently clear. With rachitis it may be judged to have no affinity whatever; with osteomalacia only so much as may exist between a chronic inflammation and an acute atrophy of any part. Yet by one character which all these three diseases have or may have in common, namely, the osteoporosis of the skull, they are constantly confounded in museums, if not

* There is not even any mention of them in Mr. R. Adams's elaborate 'Treatise on Rheumatic Gout,' 1873, 8vo and folio.

in practice, with each other, and with diseases different from them all.

The study of the osteitis deformans led me to learn what I could of the various recorded descriptions of large, thick, and porous skulls often found in museums. Nearly every large museum contains one or more specimens of such skulls whole or in fragments. They are all big, thick, porous, or spongy, with obliterated sutures, and wide apertures, and grooves for blood-vessels. Very few of these specimens have any life-histories; they are all, in many respects, alike, and usually are all named alike. Many of them it may be impossible to name or classify without much better knowledge of them than may now be had, but I believe that among them are the results of several different diseases; and it may save some trouble to future students if I refer to some of the specimens and records which have led me to this belief.

1. Some are examples of the osteitis deformans which I have described.*

2. Some are derived from cases of osteomalacia. Mr. Durham† has written on these, and Mr. Solly's‡ well-known paper gives a good instance of them. In general, I think that these may be distinguished, at least in the recent state, by their softness and lightness; the abundance of soft medulla contained in them, and the comparative brittleness of the bones when dry.

3. Some are from rachitis; they are, unless after recovery and repair, very light, almost friable, and on their surface not porous, but like fine cloth or felt.§ Like these are the

* To those already referred to, these, I think, may be added: Sandifort, 'Museum Anat. Acad.'; Lugd.-Bat., fol., 1835, vol. i, p. 142, vol. ii, tab. xiii. Skull of a man forty-three years old, with a "fungus" over the left orbit (? a cancerous growth). Other similar skulls are here referred to. Similar specimens are, probably, Nos. 2840 and 2858A in the College Museum; and, more uncertainly, 2841 and 2858, which, perhaps, belong rather to the fifth group.

† 'Guy's Hospital Reports,' ser. iii, vol. x, 1864.

‡ 'Med. Chir. Trans.,' vol. xxvii, p. 435, Mus. Coll. Surg., 395.

§ See Mus. Coll. Surg., 390–394, 2844, and 2857. I believe that Huschke, 'Ueber Cranioscleroses,' 1858, quoted by Virchow, contains facts on the rachitic osteoporoses, but I have not been able to refer to it.

skulls of some lions and monkeys which have died young, in confinement, of what is considered rickets. A collection of these skulls and other similarly diseased bones in the College museum* deserves careful study, especially because of their likeness to the cases included in the next group.†

4. These are the results of a disease of early life, sometimes even of childhood, in which all the bones of the face as well as those of the cranium are affected, and, it is said, the bones of the limbs. All the affected bones, facial as well as cranial (and herein is a clear ground of diagnosis), become hugely thickened, porous, or reticulate. The whole skull is very large, clumsy, and featureless. Commonly the cranial cavity is diminished. The orbital and nasal cavities are contracted, the antra are often filled, by the ingrowth of their several walls; the apertures for nerves are narrowed or obliterated.‡

Of these cases, which are among those named by Virchow,§ Leontiasis ossea, the best are related by Ilg‖ and Jadelot.¶ Their descriptions are very scanty, yet they give sufficient facts to distinguish the disease by their account of the cerebral symptoms associated with it. In Ilg's case, for example, the patient, who died at twenty-seven, after seventeen years' disease, had amaurosis, epilepsy, severe general headache, delirium, convulsive attacks, and at last total deafness, witlessness, difficulty of swallowing, and loss of smell.

5. Some cases, perhaps not different from these, though

* Nos. 383–388, 2854–2856, 2855A, &c.

† Although bones such as these are not described by Paul Gervais, yet his paper quoted below should be studied on all that relates to hyperostosis in animals.

‡ Among the casts in the museum of St. Bartholomew's, No. 10, is that of a skull affected with this disease, and in ser. i, 36, are fragments of a bone, which, I think, may be referred to it.

§ 'D e krankhaften Geschwülste,' B. 11, 1864–5. I need not say that this contains a very complete account of all forms of overgrowth of bone.

‖ 'Einige Anatomische Beobachtungen,' 4to, Prag, 1821.

¶ Quoted by Ilg from Meckel. The best of many accounts of this specimen is given by Paul Gervais, "De l'hyperostose chez l'homme et chez les animaux," in the 'Journal de Zoologie,' t. iv, 1875. He has carefully re-examined the skull and face and described them.

they have occurred in later life, are those by Schützenberger,* Otto,† and Wrany.‡

6. And, lastly, there are cases not so much of thickening of the cranial and facial bones as of enormous bossed and nodular hard bony outgrowths overspreading them or projecting from them. The leading case among these is that published in the 'Transactions' of the Pathological Society by Dr. Murchison,§ with a report on the specimens by Mr. De Morgan and Mr. Hulke.‖ The disease in which the facial more than the cranial bones are affected is clearly distinct from any of the foregoing, or, if it be in any way connected with them, especially with those of the fifth group, may be regarded as transitional from them to the exostoses, especially the massive tuberous and bossed ivory exostoses, which grow on or among the bones of the face and skull. The same approach to the character of hard exostoses is shown in the disease of the fibula in Dr. Murchison's case, a section of which, from the museum of the Middlesex Hospital, is now before the Society.

* 'Gazette Médicale de Strasbourg,' and in Canstatt's 'Jahresbericht für 1856,' B. iii, 34, with references to cases by Breschet and Nélaton.

† Otto, 'Neue seltene Beobachtungen,' 4to, 1824, p. 2. Both head and face are affected; the bones are described as, after softening, very hard, dense, and almost ivory-like. Six hyperostotic skulls are mentioned in his 'Neues Verzeichniss der Anat. Sammlung zu Breslau,' 1841.

‡ Wrany, "Hyperostosis maxillarum," in 'Prager Vierteljahrschrift,' 1867, B. 1, similar affections of the facial and cranial bones, with cerebral symptoms. Doubtful cases by Ribelt are quoted by Ilg, *l. c.*; Malpighi, 'Opera Posthuma,' 4to, Amstel., 1700, p. 68; Kilian, 'Anat. Unters. über den neunten Hirnnervenpaar,' Pesth, 4to, 1822, p. 133; Quekett, reported by Hewett, 'Medical Times and Gazette,' Sept. 8th, 1855, p. 229.

§ Vol. xvii, 1866, p. 243.

‖ Similar cases are illustrated by Forcade, quoted in Virchow's 'Die krankhaften Geschwülste,' B. 2, p. 22; Weber, from a specimen in the Dupuytren Museum, in v. Pitha and Billroth's 'Handbuch,' B. 3, Abth. 1, Lief. ii, p. 257; Howship, 'Practical Observations in Surgery and Morbid Anatomy,' 1816, p. 26; Adams in 'Trans. of the Pathological Society,' vol. xxii, p. 204, 1871; Lysthay, in Canstatt's 'Jahresbericht für 1858'; Mus. Coll. Surg. Eng., 3093. Virchow has a full account of nearly all these cases, and of the analogies of the disease with elephantiasis of soft parts.

DESCRIPTION OF PLATES I. TO V.

Chronic inflammation of bones (Osteitis deformans).

PLATE I. See pp. 201–202.

Figs. 1–3. From photographs of the patient (Case 1) taken six months before death.

Fig. 4. From photographs of the same patient's cap worn in 1844, and hat worn in 1876.

PLATE II. See pp. 204–205 and 208.

Figs. 1, 2. From tumour of forearm. Fig. 1. Oc. 3, obj. 4. × about 62. Fig. 2. Oc. 3, obj. 7. Tube drawn out. × 260.

Fig. 3. From secondary tumour of pleura. Oc. 3, obj. 7, t. dr. o. × 260. See pp. 204–205.

Figs. 4, 5. To show tissue in widened canals of tibia (4) and skull (5). Oc. 3, obj. 7, t. d. o. × about 260.

Fig. 6. Trabecula of bone (tibia) lined by osteoblasts. × about 260.

Figs. 7, 8. From transverse section of tibia. (A. i. in.) Fig. 7 shows new bone growing in periosteum. Fig. 8. Taken from immediately beneath the periosteum.

PLATE III. See pp. 208–209.

Fig. 9. From perpendicular section of skull. (A. i. in.)

Fig. 10. From section of tibia, to show eaten-out border of widened Haversian canal. Oc. 3, obj. 7. × 200. See p. 217.

Figs. 11, 12. From transverse section of tibia. Fig. 11. At some distance from surface. Fig. 12. From a little way beneath the periosteum. Oc. 3, obj. 4, t. dr. o. × 87.

Fig. 13. Transverse section of normal tibia. Oc. 3, obj. 4, t. dr. o. × about 87.

PLATE IV.—Upper and lower ends of femur. See p. 206. (College of Surgeons Museum, No. 395B. Half diameter.)

PLATE V.—Cranium. See p. 205. (College of Surgeons Museum, No. 395A. Real size.)

Fig. 1.

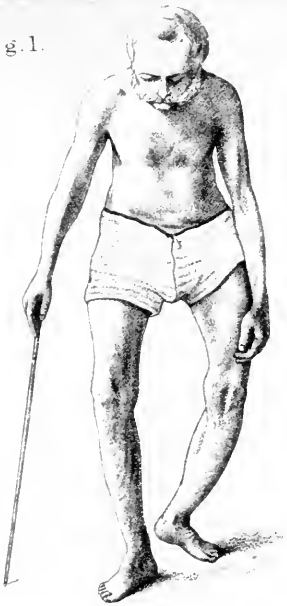


Fig. 2.

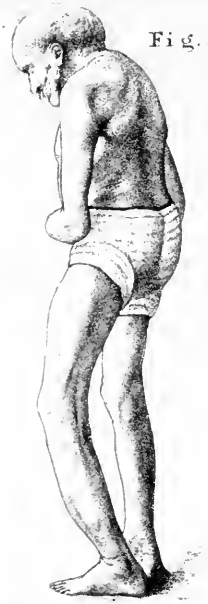


Fig. 3.

Fig. 4.

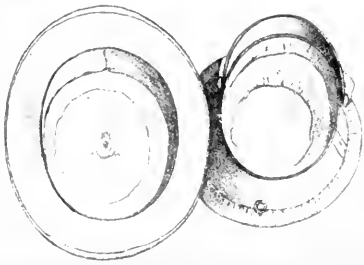


FIG. 2.

FIG. 1.

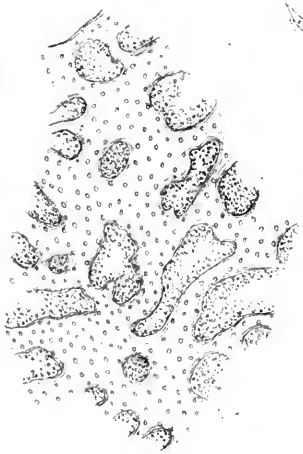


FIG. 3.

FIG 6

FIG. 4.

FIG 7

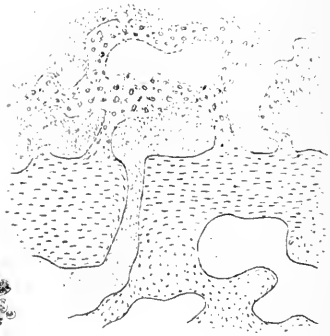


FIG 5.

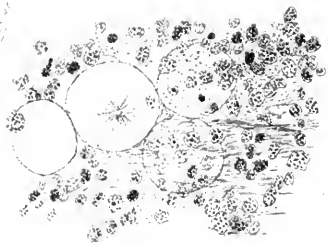


FIG 8.

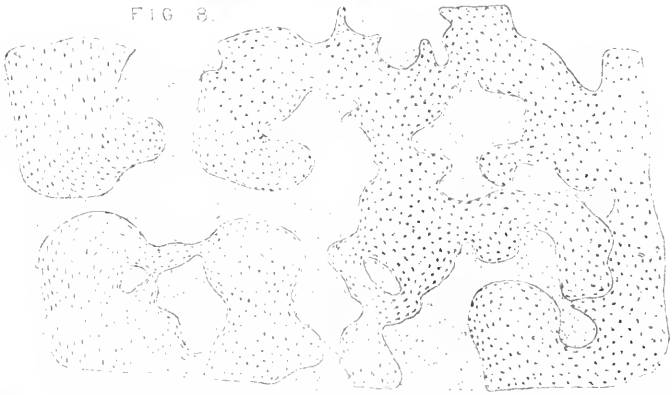


FIG. 9.

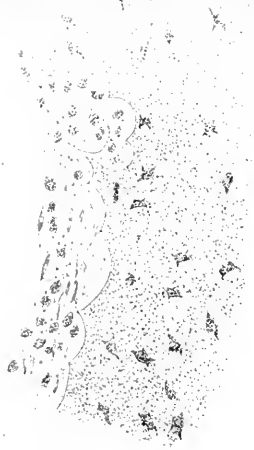


FIG. 11.

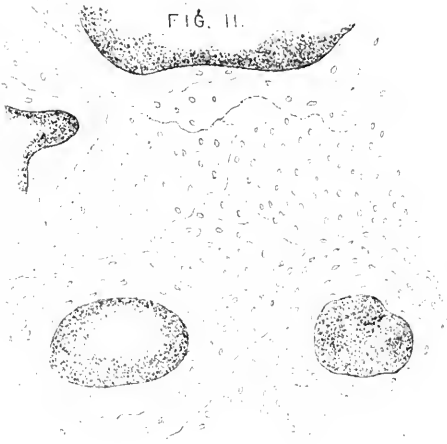


FIG. 12

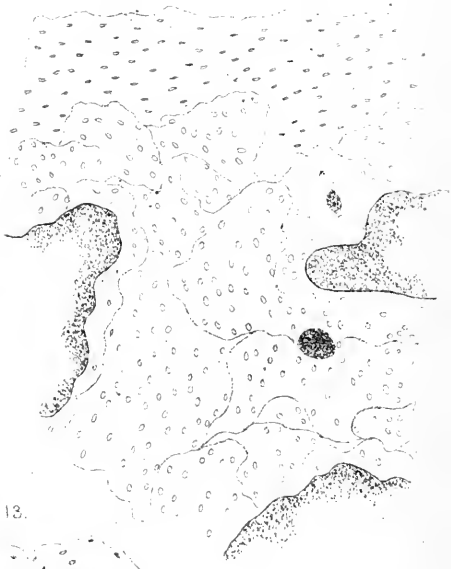
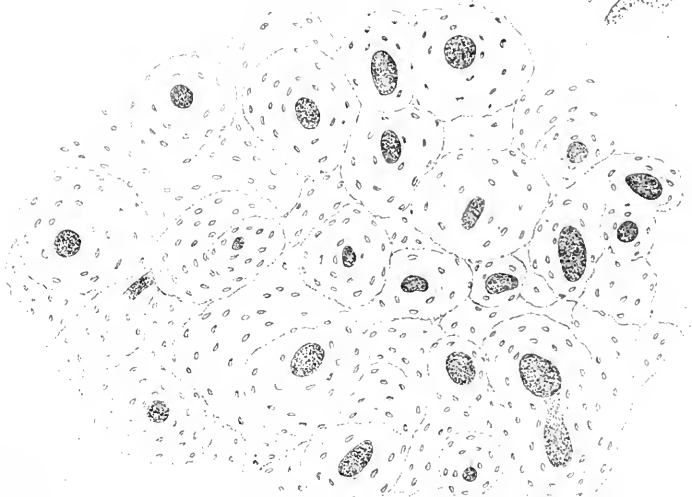
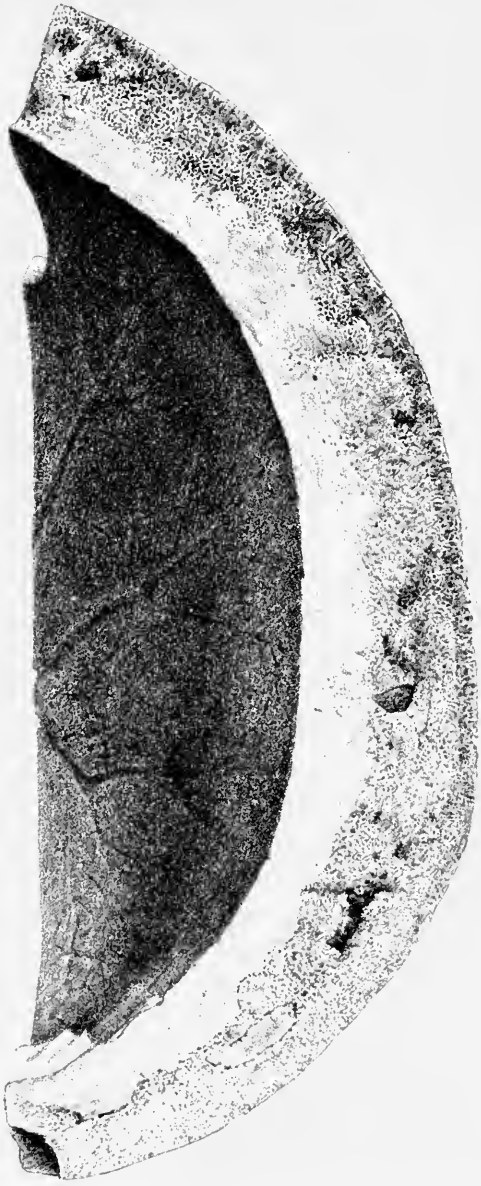


FIG. 13.



Curve of the Femur



UNILATERAL HYPERTROPHY OF THE GUMS,

ASSOCIATED WITH OTHER ABNORMALITIES,
CHIEFLY HYPERTROPHIC AND
UNILATERAL.

BY

G. M. HUMPHRY, M.D., F.R.S.,

PROFESSOR OF SURGERY IN THE UNIVERSITY OF CAMBRIDGE.

UNILATERAL HYPERTROPHY OF THE GUMS

ASSOCIATED WITH OTHER ABNORMALITIES, CHIEFLY HYPERTROPHIC AND UNILATERAL.*

Rosannah Allington, æt. 12, from Isleham, a rather pale, but healthy, well-made, intelligent girl, was admitted into Addenbrooke's Hospital in January, 1885, with great hypertrophy of the gums on the left side of the upper jaw, both internal and external to the teeth, but more particularly on the outer side, where was formed a coarsely lobulated mass, bulging the cheek and protruding between the lips. It affected the whole length of the gum as far forward as the left middle incisor tooth, and extended as high as the reflexion of the mucous membrane over the cheek, on the one side, and over the hard palate a little beyond the middle line on the other. It was about the usual consistence of gum, except at the fore part, where it was softer, and resembled ordinary venous nævus. It projected between, and partially covered the teeth, so that one bicuspid and one molar only could be seen.

On the right side, above, were two molars, two bicuspids, one canine, and two incisors. The incisors were pressed towards the right by the abnormal growth.

In other respects these teeth and the gums were natural. In the lower jaw there were, on the right side, two molars, one bicuspid, two incisors; on the left side two molars, one bicuspid, one canine, and two incisors. The gums on the left side, below, were rather thicker than those on the right, and a hypertrophied prolongation from behind extended over the crowns of the left molars.

* *Annals of Surgery*, January, 1886.

There was no difference in size between the corresponding teeth on the two sides, above or below, and no discoverable difference between the bones on the two sides of the face or head.

The left tonsil and side of the soft palate were somewhat larger than the right. The upper and lower lips, on the left side, protruded and somewhat everted by the growth over which they could not be closed, were rather thick and coarse.

This was the case also with the skin of the alæ of the nostrils, especially of the left, causing a slight deviation of the septum to the right. The hair on the head was thick and rather coarse. The vibrissæ in both nostrils were long, The left eyelids were somewhat larger, and the eyelashes decidedly larger and thicker than the right, though there was no increase in their number. The fold of skin above the left eyelid was larger than on the right side, which caused slight drooping of the lid.

The hairs of the eyebrow on the left side were coarser, more numerous, and extended more nearly to the median line than on the right, but there was no apparent difference between the eyes. The pinna of the left ear was a quarter of an inch larger and a little thicker than that of the right.

This was most marked in the helix and the tragus. The hair of the scalp came down rather lower in front of the ear on the left side. The whole of the skin of the face was rather fuller on the left side than on the right, and was rather more covered with hair. The papillæ on the left side of the tongue were rather larger than those on the right.

The second digit on the left foot terminated in a soft, bulbous extremity of skin covering a cushion of fat; without trace of nail, and without apparently any terminal phalanx; it was a little shorter than the corresponding toe on the right foot. The right thumb ended in a similar soft bulb, but there was here a rudimentary nail in the form of a short, hard flake of epithelium, and the ungual phalanx could be felt.

There was a small (a quarter of an inch in diameter) brown mole on the palmar aspect of the right thumb, over the distal end of the metacarpal bone, and another over the carpal end;

and on the instep of the left foot was a third mole, flat, and of about the size of a farthing. All these moles were hairless.

On January 16th, having drawn the middle incisor tooth and made an incision through the cheek, I removed freely with a saw the whole of the left alveolar border, including a portion of the hard palate and the teeth, and cleared away with a Volkmann's spoon the hypertrophied mucosa which extended upon the right side of the hard palate, thus completely taking away the diseased structure from the upper jaw. There was a good deal of hæmorrhage, which was checked, partly by ligature and partly by cautery.

The child was very faint, but soon recovered. The wound healed quickly, and she was discharged on February 7th.

October 3rd, 1885.—She came to the hospital that I might see her. There was no return whatever of the disease in the upper jaw, but the hypertrophy of the gums on the left side of the lower jaw had rather increased.

Her mother, who has a double upper lip (on both sides), but who is in other respects well-formed and is a very healthy woman, states that the upper gums in the child on the left side were observed to be larger at, or soon after, birth.

She attributes the condition to the fact of a mouse having sprung out of a flour bin which she was opening, and startled her when she was in an early stage of pregnancy with the child. Her belief, therefore, is that the affection is congenital.

The swelling had increased out of proportion to the growth of the child, laterally more especially, and had produced so much deformity and inconvenience that she wished it to be removed.

The following microscopical report was made by my assistant, Mr. A. Francis, who also wrote the details of the case from which the foregoing has been chiefly taken.

The part of the growth at the posterior alveolar edge consisted of coarse trabeculæ of fibrous tissue, running in various directions, with staff-shaped nuclei here and there, indicating the position of the connective tissue corpuscles.

The deeper part of the growth was very dense, with a slight amount of vascularity. The superficial part was more vascular, of looser texture, and with more numerous connective

tissue corpuscles. The growth was covered by very hypertrophied, simple and branched papillæ, rather vascular and cellular. Epithelium not excessive: there was a well-marked stratum lucidum on the surface, which was smooth. The texture of the palatine growth was looser, with smaller trabeculæ, and was more vascular, with abundant fat-cells, blood-vessels, and connective tissue corpuscles, but with less marked hypertrophy of superficial papillæ.

The following are abstracts of the accounts of ten cases of this disease, which I have found recorded:—

(1.) Gross. *System of Surgery.* Sixth edition. Vol. II. P. 431.

Lad, æt. 10, stunted development, ill-shaped head, large abdomen, feeble intellect. Gums of both jaws largely affected. Removal by scalpels and scaling instruments, several times repeated. Growing again four years afterwards.

(2.) Pollock's case. *Holmes's System of Surgery.* Third edition. Vol. 2, p. 457.

Girl, æt. 8. Epileptic. One tooth cut two weeks after birth, and six within five weeks. Gums thin, face thick and puffy. Unusual quantity of hair from birth on head, arms, and legs. When aged 2, the gums were cauterized and temporary teeth extracted. Gums of both jaws appeared largely protruding from the mouth, and alveolar processes expanded and prolonged. Portions of projecting mass cut away with scalpels and bone-nippers, repeated as the patient could bear it, till alveolar borders were curtailed within moderate limits. Some tendency to return subsequently, but Mr. Salter (*Dental Pathology and Surgery*, p. 195) says that after a few months it grew no more. A fibrous mass with enormously long papillæ and very thick epithelium.

(3.) Erichsen. *Heath's Diseases of Jaws.* Third edition. P. 127.

Girl, æt. $2\frac{1}{2}$. Incisor gums of both jaws and teeth hypertrophied; began at 7 months. Exuberant growth removed and teeth extracted. A fibrous mass with enlarged papillæ and thick epithelium. Disease progressed, and when seen by Dr. Murray (*Medical and Chirurgical Transactions.* Vol. 6, p. 138; Vol. 56, p. 250), æt. 7, affected the gums everywhere.

Soft, flattened tumors in skin of forehead, nose, axillæ, and arms, legs, and feet. Elevations, like smooth warts, on back, and sides of neck. Hypertrophied, nodular conditions of ends of fingers (except left forefinger) and thumbs of both hands, and of third and fourth toes of both feet. Nails also large and furrowed. The right forefinger less affected than the others. Ecchymosed appearance over scapulæ, buttocks, and backs of thighs. Small exostosis on each tibia. Deaf, but intelligent, and in good health. The peculiar condition of fingers and neck not noticed till she was two years old, the tumours on head a year afterwards, fresh ones appearing at various periods.

Microscopical examination showed the tumours to belong to the connective tissue group, developing into fibrous tissue and cartilage.

(4.) Dr. Murray (*loc. cit.*). Brother of No. 3, æt. 3 years 9 months. Had gums like No. 3, but affected to a greater extent; observed when 3 months old.

Tonsils enlarged and deep cervical glands. Bottle nose, with bluish discoloration. Patches of thick, glistening skin on cheek, eyelid, and neck. End of right middle forefinger enlarged and hard. Noticed recently. Small warty growth on dorsum of finger. In good health, but sullen, stubborn, and rarely makes attempts to speak.

(5.) Dr. Murray (*loc. cit.*). Sister of 3 and 4, æt. 2. Swelling of gums, and warty patch on skin at back of neck, observed when 2 months old, increasing; and skin at back of ear and, more recently, at junction of nose and left cheek, had become the seat of growth. Slight rachitis, but otherwise good health and intelligent. Mr. Jonathan Hutchinson, Dr. Robert Liveing, and Dr. Tilbury Fox examined these three patients, and argued that their affections ought to be placed in the family group of molluscum fibrosum.

The three children were born under unfavourable hygienic conditions, the eldest boy born under more favourable conditions, though from infancy living with the rest of the family, quite healthy. The fifth child, an infant, born in another and better house, was healthy, but with nævi materni on sides of face.

(6.) MacGillivray (*Australian Medical Journal.* August, 1885. P. 240).

Woman, æt. 29. Two teeth appeared at 12 months, no other after that. The affection was in both jaws from birth, mainly from the palatal portion of the gums. At æt. 10, parts of gums cut away above and below, and nine teeth extracted at nine operations. Severe hæmorrhage, checked by cautery. Hypertrophied gums, and alveolar processes which were enlarged in fore part of lower jaw removed with success, nine operations being required. Disease consisted of increased development of gums and papillæ.

(7.) Heath (*Injuries and Diseases of the Jaws.* Third edition. P. 230).

Girl, æt. 4½. Hypertrophy of gums equal in both jaws; began two years ago by the side of the temporary molars which were just coming through. Epileptic with good health, one of five children. Others healthy. Hypertrophied gums and alveolar margins removed successfully.

(8.) Heath (*loc. cit.*, p. 231). Man, æt. 26, affection of right side of lower jaw from early childhood. Removed with affected alveolus.

(9). Waterman (*Boston Medical and Surgical Journal.* April 8, 1869).

Female, æt. 27, of average mental capacity, never good health. Affection said not to have been congenital, but commenced early in life. Repeatedly had abscesses and gum-boils, gums of both jaws hypertrophied, chiefly in front, involving and overhanging the palate. Teeth had been extracted at various times. Twenty-six teeth extracted, and parts of gums overhanging palate removed. Six months after whole of outgrowth removed and dental border of superior maxilla sawn off. Under microscope, a purely fibrous growth.

(10.) Waterman adds to preceding account: "A very remarkable specimen of this disease presented itself in the person of a female of feeble intellect, covered with a remarkable hairy growth, who was exhibited by a showman in this city (Boston) ten years ago under the name of the Bear Woman. The hypertrophy of the gums was greater than in the recorded case."

(It will be observed that nine of the eleven—including my own—above recorded cases were females.)

The disease appears to be a simple, but spreading hypertrophy of the gum-tissue, differing therefore from epulis, which is an affection of a similar kind of the fibrous tissue of the alveolar processes and tooth sockets. It is congenital, or commences in very early life, perhaps at the time of the cutting of the first teeth.

It commonly involves the entire gums of both jaws, on both the buccal and the palatal sides; in No. 6 it was most marked on the palatal side, but it usually attains the maximum near the opening of the mouth where the restraining influence of external pressure is least. In No. 2, and also in No. 6, the alveolar processes are said to have been involved in the disease; and in No. 3 the teeth also are stated to have been hypertrophied, which is not mentioned to have occurred in any of the other cases. Complete removal by knife or cautery is required, and to do this effectually it is commonly necessary to take away more or less of the alveolar processes with bone forceps or saw.

In its general pathological character, as a congenital, local, and spreading hypertrophy, it is allied to nævus, and some moles; but an additional curious and interesting feature is the frequency of its association with certain other abnormal conditions. Nos. 1, 4, and 10 were of feeble intellect, No. 1 being also stunted, with ill-shaped head and large abdomen. Nos. 2 and 7 were epileptic. No. 3 was deaf. No. 5 was slightly rachitic, with warty patches on skin of head and neck. In Nos. 2 and 10, and the case I have given, there was unusual development—a hypertrophic condition—of the hair on the head, and in No. 2 on the arms and legs also. And in Nos. 3 and 4 there was a hypertrophied nodular condition of the ends of the fingers, and various abnormalities of the skin and subcutaneous tissue.

My case is further remarkable in that it was unilateral, affecting the gums of the left side of the upper jaw much, and of the lower jaw slightly, and was associated with hyperdevelopment on the same side of the soft palate, tonsil, lips,

alæ nasi, eyelids, pinna of the ear, and of hair of the head, eyebrow and eyelids, and of the left side of the face generally; also of the papillæ of the tongue on the left side. Although the hypertrophies on the head and face were thus, with the exception of some enlargement of the right ala nasi, confined to the left side, the abnormalities of the digits which were of the nature of deficiency or atrophy, rather than of excess, and the moles, were shared by the extremities of both sides.

Note.—Billroth, *Clinical Surgery*, New Sydenham Society, p. 53, mentions a case of congenital unilateral hypertrophy of the mucous membrane of the cheek and the upper surface of the tongue, combined with cavernous lymphangiectasis, in a lad æt. 10. Dr. Friedrich, *Virchow's Archiv*, XXVIII, 474, gives a case of congenital unilateral hypertrophy of the head (right side) in a young woman. The right side of the tongue was larger than the left, and with coarser papillæ; and there was greater growth of hair on that side. In the *Journal of Anatomy and Physiology*, IV, 1868, 226, I gave a short account of asymmetry in a young woman, the entire right side (head, trunk, tongue, palate, and limbs) being larger than the left; and Dr. Isambard Owen showed me the other day a similar condition in a young woman under his care in St. George's Hospital; see Lancet, Oct. 31, 1885, p. 808, where report of this case is given. The *Archives Générales de Médicine*, 1869, 11. 536, contains a paper on unilateral hypertrophy of the body, partial or total, in which twelve cases (seven in males, five in females) are collected. They include Friedrich's case above mentioned, but not that published by me in 1868.

DANISH LAZAR-HOUSES

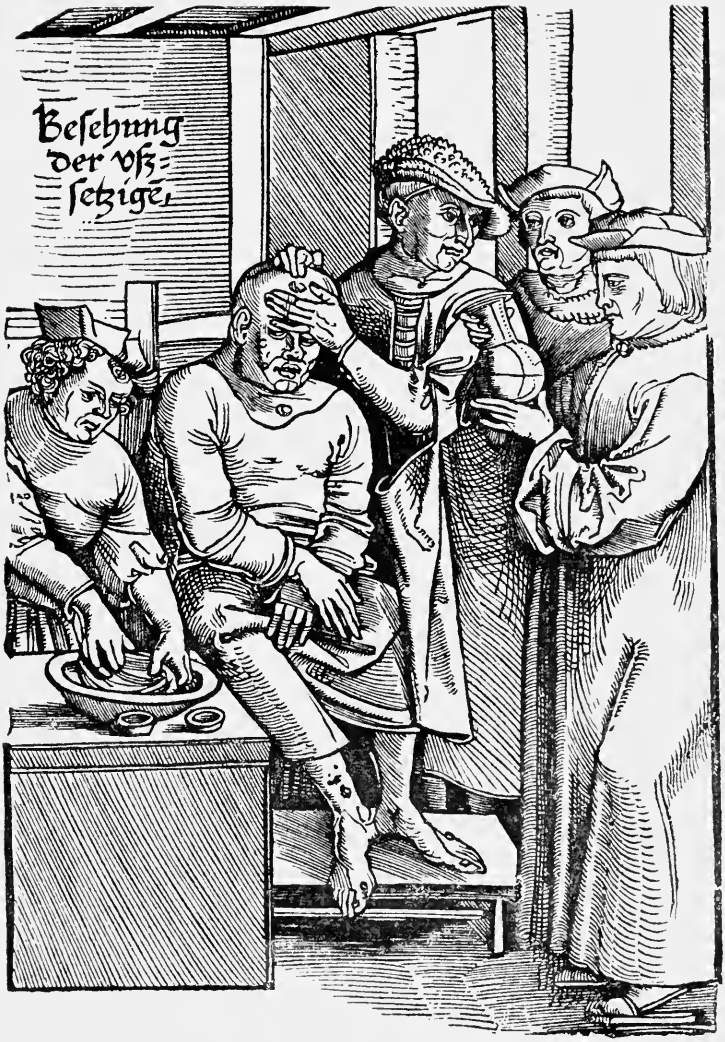
IN THE MIDDLE AGES.

BY

DR. EDWARD EHLERS,

Of Copenhagen.

CONTENTS.—1. Monastic Hospitals. 2. Laws relative to Isolation. 3. Conditions of Admission. 4. Medical Visitation. 5. Exclusion from Society. 6. Revenues of the hospitals. 7. Inspection. 8. Divine Service. 9. Functionaries of the Hospital. 10. Alimentation. 11. Lazar-house Regulations at Troyes. 12. Decline of the Hospitals. B. Information respecting Danish Lazar-houses. C. Documents.



Medical Visitation of a Leper.—Sixteenth Century.
(Gersdorff: Feldbuch der Wundarzney. Strassburg, 1535.)

Satan Strikes Job With Leprosy.
(Gersdorff: Feldbuch der Wundarzney. Strassburg, 1535.)

Lepper with his Rattle.
(Franklin: Vie privée d'autrefois, hygiène.)

DANISH LAZAR-HOUSES

IN THE MIDDLE AGES.

I.—MONASTIC HOSPITALS.

In the Middle Ages the care of the sick and the poor devolved upon the clergy, aided by voluntary donations or the alms collected by the begging friars. At a period when hospitals were not yet in existence, the sick and needy, rich or poor, resorted to the convents, taking with them all their possessions. The monks maintained all manner of sick persons, even those whose sufferings were merely of a moral nature, supplying all their wants out of the funds of their own property, which, upon the death of the patients, lapsed to the convents.

Not only did the sick thus secure themselves from all material anxiety, but they frequently entered into contracts with their hosts, the monks, of the nature of life-annuities. These contracts were often drawn up with a curious amount of detail. From time to time one finds proof that the unfortunate person who, when broken-down in health, sought shelter within the silent walls of the convent, continued to love carnal enjoyments, little in keeping with monastic rule. Thus we find a blind gentleman of Fionia, named Ubbe, bequeathing all his possessions to the convent of St. Canute, of Odense, on the express condition that he should be served each day with a dish of tripe. He wished to eat his favourite dishes every day at home; however, one day, when no tripe could be obtained, his servants set a dish of beef (skin of the

front) before him, whereupon he got into a violent rage, and resolved to take refuge in a convent.*

Not only, however, did the sick man find temporal advantages in the seclusion of the monastery, but also the favour of heaven and the salvation of his soul, by means of works of charity to the monks—in other words, to the poor of Jesus Christ.

The convents were places of refuge to many persons to whom the world no longer afforded pleasure or profit. Infirm old men, seeking nothing more than the repose of the tomb, spent their last days in the peaceful quietude of the convent, enjoying complete rest, and spending much of their time in devotions that were too often of an exaggerated nature, bordering on the superstitious.

Wealthy persons, bowed down beneath the weight of human misery, made over their fortunes to the rich seigneurial convents, where they themselves found all the care necessary to their age and misfortunes; while, in the hospitals of the Brothers of St. John, and in the convents of the Holy Spirit, the poor received the care that they could not obtain from their relatives, their friends, or the State.†

It cannot be denied that the Catholic Church supplied in the most perfect manner, considering the times, the lack of legally organized public assistance. Public charity was on a grand scale, and doubtless it was based, not only on a blind faith in Providence, but also on the great confidence felt in the administration of the clergy.

Luther, who cannot be accused of partiality in his judgment as to the part played by the Catholic Church with regard to charitable institutions, writes on this subject (Sämmtliche Werke, v. 264 f., xii. 123, xli. 131 f., xlii. 164) :—

Im Papstthum war jederman barmherzig und mild: da gab man mit beiden Händen fröhlich und mit grosser Andacht. Zuvor konnte jede Stadt, danach sie gross war, etliche

* Suhm: 'Collections helpful to the study of the history of Denmark,' Copenhagen, 1779, vol. i. page 89.

† Daugaard: 'Danish Convents in the Middle Ages,' Copenhagen, 1830, p. 91.

Klöster reichlich ernähren, will geschweigen den Messepfaffen und reichen Stift. . . .

Da schneite es mit Almosen, Stiften und Testamenten. . . .

Unter dem Papstthum waren die Leute milde und gaben sie gern.

No doubt, by the exercise of charity after this fashion, persons of slender means, in mediæval times, often injured the interests of their heirs. Daugaard makes the following observation on this subject:—

In order that exaggerated donations in favour of the convents and other religious endowments should not be too prejudicial to the heirs-at-law, the legislators of the Middle Ages fixed limits to the donors. A man *in good health* might enter a convent with all his worldly goods, or might make over all his property to a religious institution, but a *sick* person might only dispose of the half of his fortune in this way. According to the Sélande law, a sick man is one incapable of mounting his horse to go either to the Legislative Assembly or to an Assembly of any other kind; and a sick woman is one who cannot carry her keys or superintend her servants. But, the law adds, if the man or the woman becomes invalided, he or she may be permitted to enter a convent with all his or her worldly goods.*

As the Church continued to organize public assistance, monasteries were created and consecrated solely for the relief of certain maladies. I have shown in my book on *Ergotism*† that the convents of St. Anthony had at that period made a speciality of the treatment of gangrenous ergotism, which appeared from time to time under the form of a violent epidemic.

But the greatest plague of the Middle Ages, leprosy, attracted the attention of the authorities, both lay and ecclesiastic, far sooner. It was to combat this scourge that the first hospitals were built.

Lazar-houses were known to be in use in 460 at St. Oyan, in 570 in a suburb of Châlons-sur-Saône, and in 634 at Verdun.‡

* Thorkelin: Collection of old Danish laws: 'Eccl. law for Scandinavia,' p. 6; 'Eccl. law for Zealand,' p. 15–16. Compare 'King Eric's law for Zealand,' edition Rosenvinge, p. 35.

† 'L'Ergotisme, le feu sacré et le feu St. Antoine.' Paris, 1896.

‡ Chevalier: 'Notes historiques sur la maladerie de Voley,' p. 132.

In Denmark King Canute VII. seems to have been distinguished for his largesses as a benefactor to hospitals. We read in the *Liber daticus Lund vetustior*:—*

Anno Domini 1204 obiit Canutus Rex, qui inter cætera suæ frugalitatis beneficia universa Monasteria infra Daciam, et loca, quæ infirmorum Ospitalia instituta sunt larga munificentia ditavit.

Hospitals had then been established before his reign. Now every time that a hospital is in question at the commencement of the Middle Ages, one may be certain that it is a Lazar-house. The Scandinavian word *spedalskhed* (in Swedish = spitälska) indicates clearly that it is the only malady which necessitates isolation in a hospital (morbus = ho-spedalis).

The celebrated monk, Paulus Heliæ, who lived at the time of the Reformation in Denmark, says expressly:—†

Only such persons were admitted to the hospitals who had the misfortune to be smitten with leprosy, then called *hospitals siwge* (hospital malady).

The Germans still use the word *Aussatz* to indicate that it was necessary to *isolate*, to *set apart* (*aussetzen*) the lepers. The Danes, too, formerly used an expression with a similar meaning, *udsættische siwge*.

In the Middle Ages the necessity for Lazar-houses made itself felt to such an extent that each town had its own. These hospitals were bound to be erected outside the gates of the city, for fear of contagion from the malady, the infectious character of which was never called in question by anyone. They had a claustral organization, and bore the name of certain saints, but not always of the same. In the north and in the east of Europe they were under the ægis of St. George (St. Jœrgen or Œrgen in Scandinavian).‡

All the courts of St. George (St. Jœrgensgaarde) of Scandinavia were originally lazar-houses. At Stockholm the great

* Langebeck: 'Scripta rerum danicarum,' iii. p. 568.

† Poul Eliesen: 'Danish Works,' edition Secher, i. p. 152.

‡ A legend makes the combat of St. George and the Dragon take place at Svendborg, in Fionia (Denmark).

hospital for venereal diseases has preserved the name of St. Göran (in the Middle Ages, St. Görans or St. Oriens spetal).

The combat of St. George and the Dragon was an excellent symbol for the people; it led them to look upon that saint as capable of delivering them from this terrible scourge.

In Germany the Lazar-houses were generally placed under the protection of the same saint. I do not think that H. v. Hildebrand is right in saying* that they were under that of St. Nicholas. However, there may have been exceptions in accordance with his opinion.

In Central Europe they were under the protection of St. James. In historic annals there is mention of the Lazar-house of St. Jacob an der Birs, where, on the 26th August, 1444, five hundred Swiss fell fighting against superior forces, composed of Germans and Frenchmen.†

At Cracow the Lazar-houses were under the patronage of St. Valentine and St. Leonard.‡

In the south and west of Europe they were under that of St. Lazarus, the poor beggar who, according to the Bible story, was fed from the crumbs which fell from the rich man's table, and whose sores were licked by the dogs. There again is an allegory easy to interpret.

The great prison for women in Paris, the hospital of St. Lazare, where prostitutes are received, owes its name to the lepers who were formerly admitted there.

The *lazzaroni* of Naples are still the successors of *lepers living out of the city*.

In France the lazar-houses had different patrons. Neret§ says, with reference to the article on *Elephantiasis* in the 'Dictionary of Medical Science,' that the Lazar-houses were placed under the protection of St. Lazarus, Ste. Marthe, and Ste. Magdalen. Certain other localities honoured other saints as their patrons. In Berry, *e.g.*, St. Sylvain of Livroux, was an object of veneration on the part of the lepers.

* 'Public Charity in the Middle Ages.' 'Svenska fornminnes-foreningens tidsskrift' (1885–7, p. 207).

† Lesser: 'Die Aussatzhäuser des Mittelalters,' Zurich, 1896, p. 12.

‡ Glück: 'Lepra in Polen.,' Janus, 1897, p. 543.

§ 'Thèse de Paris,' 1896, p. 14.

Father Charles Cahier* cites besides as patrons of lepers—Pope Leo, St. Gaugery (Goery, Géry), Bishop of Cambray, St. Poppon, Abbé of Starela (1068), St. Guennole (Winwaloens), Abbé of Landerenec, St. Ethbin, his companion, and finally the blessed Aleyde de Schœrbeck, Cistercian at la Cambre (1250). The seal of the Lazar-house at Copenhagen was the effigy of the King St. Olaf.

The proceeds of the alms-box of St. Olaf, which was placed on the sea-shore, and of which mention is made in a statute of the 29th January, 1275, given by Bishop Peter, were dedicated to this hospital.

II.—LAWS OF ISOLATION.

The first measures taken against leprosy in mediæval times regarded the isolation of the affected person.

Many ancient local edicts, most of which date incontestably from the commencement of the Middle Ages, contain prescriptions of this nature. Already in 630, Rotharis, King of the Lombards, issued an edict against lepers.† The Lombards were at that time considered to be seriously affected by leprosy. In 770 Pope Stephen III. threatened to excommunicate Charlemagne if he married Bertha, daughter of Dideric, King of the Lombards, "if he corrupted the noble blood of the Franks by mingling with it that of the perfidious and unsavoury Lombards."

We have no data before the end of the twelfth century to enable us to establish with any certitude the appearance of leprosy in Denmark, Norway, and Iceland.‡

Legislation for protection against this scourge dates from the thirteenth century. The first law relating specially to lepers was that of Gulathing. Clause 298 of the fifth part of this law exempts lepers from military service. Conrad

* 'Caractéristiques des saints dans l'art populaire.' Paris, 1867, 4 s.t., ii., p. 504.

† Raymond: 'Hist. de l'éléph.' Lausanne, 1767, pp. 106–107, cit. de Hensler.

‡ Ehlers: 'Leprosy in Iceland,' British Journal of Dermatology, 1894.

Maurer* places the date of the promulgation of this law at the commencement of the thirteenth century.

Coercive measures taken against lepers made marked progress in their severity. Clause 105 of the edict of the 29th January, 1294, by Bishop Johan Krag, for Copenhagen,† is thus expressed:—

De leprosis.

Item percussus lepra non cogetur ad leprosos intrare, quamdiu communionem hominum publice devitaverit.

Originally, then, isolation was voluntary for the leper. He was not obliged to submit to isolation unless he did not hold himself sufficiently aloof from his healthy neighbours. Thus we see that in 1297 the subject was as much a matter of discussion as in our own day.

Later on it became necessary to assume a more severe attitude with regard to the leper. In the edict of the 14th October, 1443, promulgated by King Christopher of Bavaria, and applicable to Copenhagen, clause 36 of the fifth chapter is thus worded;—‡

Every person who is infected by leprosy in the city, must leave it and enter the House of St. George before a date fixed by the bailiffs and the burgomasters, under pain of being conducted there by them at his own expense, his property being seized to defray the expenses of his maintenance.

Another law at the commencement of the fifteenth century,§ made by King John, and put in force in all the towns of Denmark, is of no less rigorous a nature:—

§ 112.—Lepers are not permitted to remain in the towns. If a person attacked by leprosy will not leave the city voluntarily, he will be conducted by the Burgomaster at his own expense, with all his effects, to the nearest hospital of St. George.

These prescriptions for the isolation of lepers were probably observed as long as leprosy showed itself in the endemic state,

* 'Geschichte der Nordgermanischen Rechtsquellen,' Christiania, 1878. p. 27.

† 'Diplomatarium de Copenhague,' i. 59.

‡ *Ibid.*, p. 173.

§ Kolderup-Rosenvinge: 'Gamle Danske Lore,' Copenhagen, 1827, p. 100.

but it is certain that there was a relaxation at the commencement of the seventeenth century. Towards the middle of the sixteenth century all the convents of St. George were closed, and reunited to the large general hospitals, but, as a few sporadic cases of leprosy continued to appear, places of isolation were kept up for them. The order of King Christian III., given at Ribe in 1542,* says:—

Leprosy not being so common in this country as formerly (God Almighty be praised and blessed), We order that all the convents of St. George, as well as all the other lesser hospitals founded for lepers, be amalgamated with the large general hospitals. If any of these hospitals of St. George are given in fief for life to any person, We will that they be estimated and taxed at an annual rate, payable to the general hospitals. If there be any lepers elsewhere, a house shall be built for them near the general hospitals, either in the garden or in some other convenient spot, so that the same pot may feed everybody.

After this period no other legal measures were taken against lepers than those stipulated by the ordonnance of King Frederick II. on marriage. Chapter iii. of this ordonnance (given at the Castle of Haderslev on the 27th December, 1588) is reproduced in the Danish law of King Christian V. (chapter iii. v. 16–18):—

If a woman or her husband be attacked by an infectious malady, such as leprosy or the disease called Franzos, she or he must not separate from the other, but patiently bear it as a cross inflicted by God. A true Christian infected by such a malady would not, however, desire to contaminate his consort.

Later on, however, the Danish Government has recognized the necessity of the principle of isolation. Hence an ordonnance of the 26th April, 1661, prescribed that lepers should be isolated on the Færoe islands, and that, if necessary, they should be constrained to go there by force. Ten years previously four Lazar-houses had been inaugurated in Iceland (Ehlers, *l. c.*).

* Hofman: 'Fondations,' vol. ii. p. 100.

III.—CONDITIONS OF ADMISSION.

The Lazar-house only admitted the citizens of the town or the inhabitants of the district within which the hospital had the right to collect alms.

Poul Eliesen * says expressly:—

And such was the custom in former times that it was made incumbent upon every community to provide for its sick, and even for its infirm members, and to maintain anyone who had lived and laboured therein.

The same conclusion may be drawn from the passage cited from Christopher of Bavaria (Municipal Code of Copenhagen, 1443)—"Every person infected by leprosy in the town," &c.

When a town had no hospital for lepers, they were sent to the nearest Lazar-house, conformably to Clause 12 of the law of King John, which applied to all the towns of Denmark.

At Paris a leper could not be admitted to St. Lazare if he had not been born within the four gates of the city and was the legitimate child of a citizen of the same city. Bakers were the only exception to this rule, for they paid a special rate to St. Lazare.†

At Nimes (according to Puech), strangers were only admitted with the approbation of the Consuls, and had to pay 25 *livres* for admission, whilst the people of Nîmes paid fifteen only, or about 225 francs.

Admittance to a Lazar-house was, therefore, not altogether a matter of course; some asylums even refused admittance to poor people incapable of paying the prescribed entrance fee. At Lisle 60 *sous* had to be paid for visitation expenses.

In some cases even installation fees had to be paid: at Bourbourg (according to Coussemaker) 7 *livres*, 10 *sous* had to be paid, of which two-thirds went to the head of the establishment and one-third to the patients.

It is probably this fee which is called *introït* in Denmark. Svendborg's first document (see end) decrees that the priest shall pay his introït like any other of the brotherhood.

* Edition Secher, i. 153.

† Héry: 'Les léproseries dans l'ancienne France,' p. 61. Paris: 1896.

The brethren and sisters had to pay the introït if they could, and according to their means, "in conformity to anterior custom."

In Svendborg's second document (see end) the entrance fees are fixed at five marks, to be distributed among the members of the Lazar-house, probably with the object of enabling them (at Svendborg as at other places) to make good cheer. This document tells us that the introït (or welcome) being paid and distributed, the chief authority shall make the proclamation, and the new comer, swearing by God and all the saints, shall promise, in the presence of all his brethren and sisters, to make a proof to them of loyalty, deference and kindness, either in the hospital itself or outside of it.

Besides this the patient was expected to bring with him all the furniture he required, and to leave it to the establishment at his death. At Nîmes, for instance, the leper in question had to furnish himself with a bed, a mattress, a pillow or bolster, six sheets and two counterpanes, ten basins and two tin dishes, weighing altogether thirty pounds. If he failed to bring this furniture, this bed, or at least the mattress, he had to get on as best he could, and to sleep on the floor or on straw, &c. Several towns, such as Troyes, had one lazaretto for the paying patients and another for the poor.

At St. Lazare, in Paris,* some of the patients lived apart, either in houses outside the hospital precincts, or in buildings erected within the same; others, again, in rooms with a special attendant. This category of lepers were, of course, not supported by the hospital, but paid their own expenses. No leper could be admitted unless he could lay claim to citizenship, and this regulation was observed very strictly.

In 1445, Jehan de Maubeuge, secretary to Philip the Good, being smitten with leprosy, desired to enter the Lazar-house at Lisle. With this object in view he applied to the mighty prince, Duke of Burgundy, of Brabant and of Limbourg, Count of Flanders, of Artois, Burgundy, Hainault, Zealand and Namur, and rival of the King of France. This high and

* Boullé: 'Recherches historiques sur la maison de St. Lazare de Paris'; 'Mémoires de la société de l'histoire de Paris,' t. iii.

mighty personage wrote to "his very dear and much beloved" aldermen of the city of Lisle, begging and praying them, in the most courteous manner, to be kind enough, out of regard for himself as Duke, to take in his servant. It was all in vain: the citizens of Lisle refused him admission.*

Another natural consequence of this state of things was, the Lazar-houses only admitted persons really attacked by leprosy. The existence of the disease was attested by physicians; or, if there were none within reach, by those who acted as such in cases of emergency; or, lacking these substitutes, simply by the managers of the hospital, or even by lepers who had been previously admitted, and who were summoned to give their advice, either individually or by means of a jury formed from among themselves.†

In Germany the diagnostic was made by a commission of experts, called Aussatzschau (inspection of persons to be isolated). Thus we learn from history that the people of Zurich sent their lepers to Constance until the year 1491, from which time Zurich had its own inspectors.

In 1396 the Municipal Council of Basle decreed that no barber had the right to grant a certificate of leprosy.‡ The examination of suspected cases must take place in the presence of the doctor, Master Berthold, or of such successor to him as the said council should appoint.

In the country of the Rhine, Frankfort was the city chosen for the visitation of lepers. Giesen, Marburg, Wetzlar, Bacharach, the Upper Wesel and Amberg sent their cases to Frankfort to be examined. In 1469 Frankfort despatched a leper to Cologne, about whom a decisive judgment was desired.§

As regards the reporting of fresh cases of leprosy, it is almost certain that it was generally expected that their neighbours, fearing contagion, would denounce them as lepers to be interned; but there is no doubt whatever of the fact that in many places doctors and barbers were expected to report

* Héry: ch. l. p. 59. † *Id. ibid.* p. 55.

‡ Lesser: 'Aussatzhaüser des Mittelalters,' p. 10. Zurich: 1896.

§ Kriegk: 'Deutsches Bürgerthum im Mittelalter,' i., p. 5. Frankfurt a. M.: 1868.

any case they met with. A supplementary article of the Corporation of Barbers of Frankfort-on-Main, in 1433, forbids its members to shave or to bleed a leper, and orders them to give notice to the authorities of any leper who does not remain at home. From the fourteenth to the fifteenth century the physicians of Metz were bound by oath to report new cases of leprosy, and every person suspected of the disease was immediately examined by the "myr."

How was this inspection practised in Denmark? I am unable to furnish information on this point, and have therefore given the above notes as to what was done in other countries. It must be admitted that the kind of establishment in question presents itself everywhere under the same aspect. As to the obligation to denounce lepers in Denmark, the only mention that Svendborg's first document makes of it (see end of this work) is that the administrators of the hospital—that is, the trustee, the treasurer, the priest and the warden—must enforce the sequestration of such persons of their district as may be infected by a malady which necessitates their separation from their fellows.

The rules of the Swedish hospitals (see Hedquist, 50th ch.) prescribe that the bailiff shall keep himself informed as to the lepers of his bailiwick, and shall intern them in the hospital, and that if they refuse to go there, or if a third person seeks to prevent them from going there, the delinquents shall be liable to heavy fines.

IV.—MEDICAL VISITATION.

Circa tamen examen et judicium leprosorum est multum advertendum, quia maxima injuria est, sequestrare non sequestrandos, et dimittere Leprosos cum populo. *Nam morbus est contagiosus et infectivus.* Ideo medicus sæpe debet eos aspicere et signa volvere et revolvere et videre, quæ sint univoca et quæ æquivoca, et non judicet per unum signum sed per concursum multorum, inprimis univocorum.

Guy de Chauliac,
Chirurgia magna ed. Joubert.
London, 1585, 4, cited by Hensler.

Lepers were examined according to very minute regulations, submitted to print, and of which mention is made by authors of this epoch, such as Ambroise Paré and Gersdorff.* These regulations show a very exact knowledge of the symptoms of the malady. Writers who have asserted that the mediæval Lazar-houses were resorted to by incurables from all parts, and amongst whom lepers were only in the minority, must have been ignorant of these regulations.

I will cite here the regulations, bearing date 1555, which are to be found in Gesner's works :— †

Examen leprosorum autoris innominati
ex Conr. Gesneri Scriptor. de Chirurgia opt. Tiguri, 1555.

Oportet medicum providere et attentum esse circa signa ipsius lepræ, et illa revolvere multoties, et non uni signorum credere, sed pluribus, et videre, quæ sint signa propria, et quæ sint æquivoca, unde secundum propria signa judicet, et secundum æquivoca, secundum majorem partem. Faciat igitur primo infirmum jurare, ut de interrogandis dicat veritatem, et consoletur verbis consolatoriis, dicendo, quod hæc ægritudo salus est animæ, et tales Christus non despexit, licet mundus eos fugiat. Tunc medicus secundo quærat de regimine suo, et diæta, et si consuevit habere aemorrhoidas, vel mentagram, et nunc non habeat. Item quales habuit ægritudines, quæ ad lepram disponunt.

Primo faciat fieri phlebotomiam de cephalica, vel de basilica, vel de ambabus, et ex depositione sanguis et ejus substantia judicet. 1. Si sanguis fœteat. 2. Si tactu sit viscosus vel unctuosus. 3. Si manibus et digitis totus strideat, ita quod sit arenosus, et asper ad tactum per adustionem. 4. Si, post lotionem sanguinis per pannum lineum duplicem, consideret carnem illam, quæ est in panno, si sit arenosa, granulosa, trumbosa, nodosa. 5. Si fila rubea apparent ibidem, et si caro alba, quæ stridebat ad tactum, et fœteat, et nigrescat, hoc est malum signum. 6. Si color sanguinis sit niger, lividus.

De oculis.

1. Si oculi rotundantur, et maxime versus domesticam partem. 2. Si sit palpebrarum inflatio. 3. Si sit oculorum inflatio et superciliorum. 4. Si pili superciliorum cadunt, et apparent crevisse pili parvi et minuti, quæ nisi ad solem

* Hensler : 'Vom abendländischen Aussatze,' p. 63. Hamburg : 1794.
† *Ibidem.*

videntur. 5. Si extractis pilis palpebrarum et superciliorum adhæreant ejus velut frustula carnis. 6. Si albugo sit tenebrosa et livida. 7. Si venæ rubeæ apparent in alba, præcipue in angulis oculorum. 8. Oculorum aquositas.

De auribus.

Si sint rectæ et rotundæ propter consumptionem pulparum ejus.

De naribus.

1. Si nares exterius secundum exteriorem partem ingrossentur, et interius constringantur, et coartentur. 2. Si appareat cartilaginis in medio corrosio, et casus ejus, significat lepram incurabilem. 3. Si fœteant. 4. Si apparet polipus et strictura anhelitus. 5. Si multitudo sit sternutationis.

De ore.

1. Extrahatur lingua, et vide, si sit granulosa de subtus, aut etiam in extremitate linguæ, et in poris appareant grana alba, viridia, vel livida, hoc est certum signum. 2. Si fœteat anhelitus. 3. Si sit spiritus ejus difficilis attractionis, et cum difficultate attrahatur, ut in pthisi, disnia (dyspnœa), et astmate. 4. Labiorum ingrossatio, durities, fissura, denigratio, et liquiditas. 5. Si gingivæ sint asperæ et corrosæ. 6. Si ejus sermo sit, ac si per nares loquitur.

De facie.

1. Furfures capitis fricando. 2. Color lividus totius faciei vergens ad fuscedinem, mortificatus et terribilis aspectus faciei cum fixo intuitu. 3. Pustulæ et nodositates in facie et tuberositates. 4. Formicatio et titillatio totius faciei, ac si acus pungat eam. 5. Si sit tensio frontis et splendor, ut cornu.

De pectore.

Si in pectore apparent venæ grossæ. Item si sunt mamillæ duræ.

De manibus et pedibus.

Si manuum musculi fuerint consumti, et maxime pollicis et indicis. Item lividitas unguium cum sanguinis diminutione, lividitas et scissura unguium; quando digiti manuum et pedum et alii sibi propinquiores, quæ vocantur medii; patiuntur frigus, et dormitationem, et quasi quandam sensus privationem. Et aliquando accidit cuti, inter illos digitos usque ad cubitum vel brachium, et a pede dormitatio; illa extendit se ad ancham. Serpigo et impetigo se eis adsunt, et prius pili parvi ascendunt, malum signum est. Et si impetigo et serpigo fuerint in magna quantitate, manuum aut pedum, est certum signum acuitatis materiæ. Consumptio pulvis tibi-

arum. Sensibilitas sive tibiarum sive retro tibias, quod puncturam acus non sentiat, est signum lepræ. Distortio juncturarum, et nodositas circa illas partes.

De toto corpore hoc.

1. Si sit facilis infrigidationis. 2. Si eminentiæ frigoris, sicut in ansere apparent, est signum infallibile. 3. Si sub cute sint nodi, qui manibus tractari possunt. 4. Si sit pruritus et scabies illic. 5. Si acqua descendit per corpus, ac si transiret per rem unctuosam. 6. Si sit corrosio cutis, et proprie inter spondilem (vertebram) et dorsum. 7. Sentiunt se graves cum dormitatione membrorum. 8. Sub cute transeunt formicationes, ac si esset urtica percussus, vel sic, ut vermes ibi essent. 9. Plus appetunt coitum et ardent. 10. Sunt magis dolosi. 11. Somnia vident terribilia. 12. Incubum sæpius patiuntur, ac si cor eorum claudatur in nocte, et comprimatur.

De pulsa.

Est debilis, et rarus, et subtilis. Formicatio in palato, lingua, genu, et palpebris, et in toto corpore: color cutis lividus. Fætor sudoris.

It is very plain that the visitation in question was an excessively minute examination, and quite in keeping with the times. The patient hardly ever got off without paying, if he was found to have the means to pay. At Lisle, the fee for the medical visitation was sixty sols, of which sum half went to the examining jury, composed of seven incontestably authentic lepers living in the hospital. The other half reverted to the sergeant of the aldermen who had called this melancholy jury together.*

V.—EXCLUSION FROM SOCIETY.

The result of the before-named visitation was a certificate, of which a very characteristic specimen, from the pen of Ambroise Paré, which has been cited by all writers, here follows:—

We surgeons, sworn in at Paris by order of the King's proctor, at Chastelet, given the 28th day of August, 1583, by which we were nominated to make our report as to whether X. is attainted with leprosy, have therefore made our examination as follows:—

In the first place we have found his face to be cyanotic,

* Héry, passage cited, p. 56.

wan, and covered with blue blotches. Further, we have extracted some of the hairs of his head, beard, and eyebrows, and have observed that a small portion of flesh was attached to the roots of the hair. In the eyebrows and behind the ears we have found little glandulous tubercles, the forehead was wrinkled, the expression wanting in animation, the eyes red and glaring; the nostrils, distended outwardly and contracted inwardly, were almost obstructed with little crusted ulcers; the tongue was swollen and black, while on its upper and lower surface we found three little grains or corns, such as are found in leprous hogs; the gums were corroded, and the teeth loose; the breath very offensive, the voice hoarse, and the speech nasal. We have also examined his body, and have found his skin to be rough and uneven all over, like that of a thin, plucked goose, and in certain places several tetters. Besides this, we inserted a needle rather deeply into the tendon of the heel, without his feeling it noticeably.

By these signs, as univocal as they are equivocal, we pronounce the said X. to be a confirmed leper.

In consequence of which it will be desirable to separate him from the company of healthy persons because the malady is contagious.

We all certify the above to be true, witnessing the same with our own hand here below.

Upon the receipt of the certificate from the jury of surgeons who had examined the sick man suspected of leprosy, the burgomaster had to order the sequestration of the leper, and to inform the priest of it, who mounted the pulpit and announced the matter publicly.

Then it was that the poor invalid saw the terrible day dawn when he should be excluded from all intercourse with his fellow-men, after receiving the blessing of the priest and taking from his hands the melancholy grey tunic, which was to be his only clothing in the future. Until the conclusion of the ceremony the priest kept the sick man's mantle, hood, gloves, rattle, belt, and knife by his side. Somewhat later the procession commenced, during which the priest had to lead the condemned man to the church. Relations, friends, and neighbours took part in this sad spectacle, which rendered the last honours to a living corpse. In the porch the leper passed before the wicker-work bier on which he was to be carried to the cemetery, while high up, behind the high-altar and above the choir, he beheld his shroud spread out to view.

A requiem was then performed, and the sick man had to listen to it with his face veiled, isolated from his fellows, like a dead man in his coffin. In some places, however, the cruelty of this ritual was mitigated: the unhappy man, exempted from the funeral service, heard instead the mass for the day, or the office of the Holy Spirit, or a special mass, in which the prevailing idea was a paraphrase of the 38th Psalm: "Thine arrows stick fast in me, and Thy hand presseth me sore."

And for the epistle the 5th chapter of the Second Book of Kings was chosen, the story of the leprosy of Naaman, and of the manner in which he was cured by the prophet Elijah; while for the gospel the passage was read which tells of the cure of the leper in Samaria.

When the priest had prayed, the leper recited the following prayer: "O Jesus, my Saviour, Thou hast created me of the dust of the earth; Thou hast given me earthly life; grant that I may awaken to eternal life at the last day."

Divine service being ended, the priest returned the leper his mantle, gloves, rattle, belt, and knife, and conducted him to the cemetery. There he picked up three pieces of earth and placed them on the head of the unfortunate man, saying: "My friend, thou art dead to this world," and, pointing to Heaven, he charged him to have patience. Thereupon the procession resumed its march, taking the road to the hospital, where, before the portal, the King's proctor and the director of the hospital awaited it. The procession halted: the King's proctor addressed the patient, asking him what he wanted; to which the leper replied that, having been declared leprous, he, a citizen of the town (in the present case, Dijon), sought admission to the hospital, in order to enjoy there the rights accruing to such admission. The chaplain next came forward, and, upon his giving the order, the leper placed his bare hand on the holy books and took the vow of obedience, poverty, and chastity.

Besides this, the chaplain held forth to him a number of prohibitions, of which the following is the gist:—*

1. I forbid thee to show thyself in the churches, markets, bakeries, or other places of public assembly.

* Chéruel: 'Historical Dictionary,' Héry's quotation, p. 98, completed from other sources.

2. I forbid thee to wash either thy hands or thy utensils in the fountains and wells, and, if thou art thirsty, thou must drink from a special vessel.

3. Thou must always wear a conspicuous garment, to warn people who do not know thee to flee thy company.*

4. Thou must not touch anything thou desirest to buy, but point to it by means of a little wand, and, when asking alms, thou must sound thy rattle.

5. Thou must not enter any tavern or habitation other than the house where thou livest, and, when thou desirest wine or meat, it must be brought to thee in the street.

6. When begging in the city, thou must always keep to the middle of the road and use thy rattle; if anyone wishes to speak with thee, or thou desirest to speak to anyone, thou must place thyself to leeward of the wind, so that thy breath and thy exhalations may not trouble him.

7. If thou hast to pass along a foot-path or a bridge, or to climb a barrier, thou must wear gloves.

8. I forbid thee to touch a child, or to give him what thou hast touched.

9. I forbid thee to eat or drink in the company of any others than lepers; and know this, that at thy death, when thy soul and thy body are separated, thou wilt be interred in thine own house, unless the establishment accord thee a special dispensation.

Together with these prohibitions, a notary drew up a legal document of all the conditions enjoined on the leper, who then bade the assembly farewell. Then the prior or director took the unfortunate man by the hand and conducted him into the hospital.

Arrived at his destination,† the leper could say with the Psalmist: "This is my rest for ever; here will I dwell; for I have desired it."

Those who had been present at the ceremony were then invited to show their compassion and their charity to the unhappy man; and his parents, or, failing these, the representatives of the Church, had to place themselves at his service

* Even at the present day lepers may not show themselves in Morocco unless veiled, mounted on asses, and provided with a little bell. Gémy and Raynaud, 'Leprosy in Algeria.' Algiers, 1897, p. 82.

† The end is cited from W. Schmidtz: 'Einfluss d. Religion auf das Leben, etc.,' Freiburg in Breisgau, 1894, p. 109.

for the next thirty hours at least, in order to help him to reconcile himself to his solitary life.

Thereupon the people and the priests returned to the church, and offered the following prayer:—

"Almighty God, who through the patient suffering of Thy Son hast broken down the pride of the old enemy, grant to Thy servant such patience as shall enable him to bear with resignation the ill that has befallen him. Amen."

With regard to the conditions to which the leper had to submit upon his entrance into the Lazar-house, several remarks may be made.

The clothing that the leper was bound to wear had to be simple in kind and of dark colour, usually grey or black. In Switzerland the additional regulation was made that the lining must not be of a variegated material, and that the head-covering was to have no vizor.* The wearing of gloves and the carrying of a wand and a rattle were everywhere enforced.

However, sometimes other things were used. Thus Lesser, in his work already cited, page 15, mentions a miniature of the tenth century, in which a leper carries in a bandolier on his left shoulder a large hunting-horn. Later on, a little bell was used, and finally a rattle. In Normandy, what was used bore the name of Tartavelle. In Denmark,† a prescription of Christian II., bearing date 1522, exacts (i, 116) that, in order to be easily recognizable to the passers-by, lepers must carry a rattle, or wooden clapper, and remain at the gates of the city, where the public road is much frequented, and that they must strictly observe the prescribed form about moving or asking alms.

At the same time this same book (ii. 91, p. 35) speaks of a wooden clapper, to make a noise; but this denomination does not hold good, for the expression wooden clapper is pleonastic:

* In the passage cited by Lesser, p. 18, one reads that in 1511, Matthew, Bishop of Sion, disguised himself as a leper and crossed the French camp *incognito*, finally arriving at Rome, where a cardinal's hat was the object of his ambition.

† Resen: 'Christian II.'s Law-book.' Kopenhagen, 1684.

Kolderup-Rosenvinge rightly translates* *Træ-Klappe* (wooden clapper) *rattle*.

Having entered his asylum, the leper was regarded as civilly dead; he no longer possessed anything; he had left the world, and had nothing but the temporary use of his personal chattels, which were even no longer at his own disposal. According to the French law (Héry), he had lost the right of inheriting; *capite diminutus*; he might neither challenge to a duel, nor be challenged, and was *outside the law of the world*. Those who wish to inform themselves as to the peculiar position of the members of a Lazar-house, with regard to the law-courts, have only to consult Svendborg's first document, of which the following is the tenour:—

Every offending brother will be liable to a forfeit for the benefit of the brethren of the hospital.

If he become deserving of capital punishment, his execution will be in the power of the tribunal of circumscription.

In the districts where there were no special asylums, the poor leper could be constrained to live in a *borde*, or isolated cabin, which the corporation had made for him, as was the custom, for instance, in the Faroe Islands. Before the door a cross was placed, bearing an alms-box, and passers-by were requested to give of their charity to the maintenance of the unfortunate inmate. But naturally there are no traces of official documents or acts relating to such retreats.†

Upon the death of the afflicted person, his habitation was burnt, and he himself was buried face downwards (Thau, Normandy). It was in this position, the face to the earth, that, at a later period, the bodies of lepers were found in different places; for, even after their death, these beings inspired their survivors with horror.

Such lepers, however, as had sufficient means to build a refuge for themselves, in order to shut themselves up when smitten with this fell disease, could obtain the necessary permission, conformably to the regulations of the hospitals of Sweden;‡ but for this they had to pay forty marks to the

* Old Danish laws, chap. l. p. 116.

† Héry, p. 64.

‡ Hedquist, in the passage already cited.

hospital. Once admitted to the hospital, no one could obtain leave to quit it ultimately, under any pretext whatever. If the Archbishop André Sunesoen, who died in 1228, benefited by a dispensation of that kind, it is evident that he arrogated to himself the power to dispense himself, after he was smitten with leprosy in 1222. Suhm remarks:* "In the parish of Iffoe (Halland, in Sweden) there was formerly at Hoŭgaard a long-shaped house, with masonic foundations and high roof, which in 1624 had not yet become dilapidated. This house was built by the Archbishop André Sunesoen, who lived in it alone."

On the sea-coast may be seen, north of the church, the spring whence, on a certain Christmas Eve, he ordered his servant to go and fetch some water, which was immediately changed into wine.

VI.—REVENUES OF THE LAZAR-HOUSES.

These revenues were collected in the following manner:—

1. Imposts or regular rates.
2. Donations, especially those called "spiritual sacrifices," flowing into the hospitals in the form of legacies.
3. Alms collected in three different ways:—
   - A. Collections in the district.
   - B. Boxes and offerings.
   - C. Indulgences.
4. Property of admitted lepers.
5. Privileges, especially reduction of taxes or exemption from them.
6. Current receipts (the proceeds of forfeits).

We will examine each of these categories of heterogeneous revenues in detail.

1. Regular Taxes.

In many districts the poor-tithe reverted in part to the hospitals, and, besides this, part of the rates on the moorings. Further, a letter, bearing date 1440,† informs us that in

* 'Hist. Denmark,' i. p. 118.

† Hedquist.

Sweden it is a long-established custom to come to the aid of poor people afflicted with leprosy by the hand of God, by levying on each household (Hionalag) a contribution of four Swedish penninge. For example, the hospital at Slagelse received the tithe of more than twenty parishes. At Aarhus, the domain of St. Catherine received what was called *the hospital oats*, or *seed corn* from seven bailiwicks.

In point of fact, the payment was rarely made in hard cash. As the reader will see later on, Svendborg's first document mentions that, among the revenues of the hospital, rents and tithes were paid in grain, butter, money, cattle (sheep, &c.), geese, fowls, and meat.

2. Donations.

Most of the hospitals were built by the help of donations, which, besides, represented one of the principal factors of their wealth, especially under the form called *spiritual sacrifices*, which were bequeathed to them by will. These spiritual sacrifices flowed in principally in the middle of the fourteenth century, when the black pest aroused the generosity of the people. The donations consisted chiefly in lands or money; the money was generally invested in land, in order to draw rents therefrom, as one sees from the history of certain Lazar-houses. Besides this, most of these establishments were occupied with cattle-breeding and agriculture on a greater or less scale.

The statutes of the hospital at Enkoeping* enjoined upon patients, who were capable of working, to help during the summer and autumn in carrying hay and other crops to the granaries. The inventory of the same hospital, in the year 1407,† has the following entries:—6 cows, 4 oxen, 1 bull, 8 old sheep, 11 sucking-pigs, 1 old mare, 2 hatchets, 4 sickles, 3 scythes, 1 harrow, 3 hay-rakes, 1 plough, 1 ploughshare, and 1 gridiron.

The estates that were far from the hospital were let out in farms; a number of contracts for such farms are to hand.

As will be seen later on, the servants of the Svendborg estate had to work for the hospital. Every good farm had to

* Hedquist.

† 'Diplomatorium Suecanum,' N. F. i. 880, cited by Hedquist.

contribute two horses half-yearly, and to supply the mendicant friars with lodgings and beer, as well as forage for their horses, when they went round collecting "God's alms." But it was possible to be exempted from this contribution by the payment of a "ransom" fee. The said servants were, besides, bound by oath to work one day for the rye-harvest and two days for the barley, besides conveying the curators of the hospitals to the assemblies, &c.

The Lazar-houses at Naestved and Svendborg possessed forest domains.

3. Alms.

A. *Quests in the Bailiwick.*

In this place the word *quest* denotes the sending out by the hospital of mendicant friars, who were driven round the district in vehicles belonging to the establishment, for the purpose of collecting alms. The expression Herritzgang, employed in the countries of the north, means, *walking through the bailiwick*, and is to be found in the second document about Svendborg, under date 1590. This right of driving questors (or collectors) round a bailiwick, which was customary in some parts, made it obligatory to relieve these districts of their lepers. This proceeding was authorized by Christian II. in his project for the regulation of churches and schools.*

The seigneurial monasteries, as well as the cathedrals, despatch numerous questors on horseback, by carriage or on foot; the bishops also permit a crowd of questors to beg on behalf of newly discovered localities, where there are therapeutic springs, and also for other places. These mendicants pester and fatigue the public by their importunity. This abuse must be put a stop to; but the questors of the Holy Spirit, of Our Lady, the Black Friars, the Grey Friars, of St. Anthony, and of St. George, must have an exception made in their favour, for they have nothing but "God's alms," and are true mendicant friars, and at present they can do but little for others if new districts are not found for them. Given with Our consent and order and those of the Council of State.

In the year 1522, Christian II. issued the following order† (first part of chapter 116):—

* 'Danske Magasin,' iv. 361.

† Resen.

Also Our will and pleasure is that in every town where lepers are interned, one or two of them be delegated as permanent collectors of "God's alms," since good people are willing to give to God for the necessities of poor lepers and for their maintenance at the hospital.

The man who collected these alms was called the *mounted valet* of the monastery. The establishment remunerated him; he was nominated by the patients, and occupied a confidential post. The hospital had even to keep a horse and carriage at his service.

The curator of the hospital had one key of the church alms-box, the priest had the second key, and the *mounted valet* had to come to an understanding with the churchwarden as to the third key; but neither the curator nor the priest could forbid the representatives of the two other functions to open the alms-boxes in case of need (see Svendborg, Document i). In the second document about Svendborg we are told that the friars who collected alms were in good health. Thus we see that *mendicity was organized and systematic; but that lepers were not permitted to beg themselves.*

In Switzerland lepers were originally permitted to beg in person; but this privilege being prejudicial to the law of isolation, the Council of Basle decided in 1652* that only the bathing-man and the carpenter of the hospital might collect alms. On high festivals four of the best and cleanest of the invalids were selected besides, and were sent out begging.

B. *Alms-boxes and Offerings*

The hospital had its alms-box as well as the church. It had, besides, the proceeds of other boxes. In 1508, as we shall see further on, King John (Hans), finding that the poor of the hospital of St. George of Copenhagen complained of the want of provisions and of "privileges," ordered that the rector should draw his income from the proceeds of farming only, and should also be exempted from paying rent and taxes; but that in return he should cause mass to be said every day, and should undertake to keep the buildings and the domain in repair. As to the offerings in the alms-box at

* Lesser.

St. George's, and in the church or registry offices, they were to be devoted to the sick; and the other offerings, the result of collections, were to be distributed among the inmates; but in such a manner that the sick should receive more than the healthy. The offerings made to the church, such as armour, swords, and other contributions of a like kind, were to be sold, and the proceeds divided between the patients and the church (to maintain and adorn the latter). Offerings placed in the church alms-box might be used for nothing but the church.

The St. George's alms-box had two locks, which could only be opened by the rector and one of the lepers elected for the purpose. It was the rector's duty to see that the sick received their dues. The inspection had to be thorough, in order that the "spiritual sacrifices" resulting from legacies, either to the sick or the church, might be employed conformably with the conditions. Twice a year the commandant of the castle and the two burgomasters had to satisfy themselves that these regulations had been carried out.

The hospital might also derive benefit from alms collected in other boxes. An edict dated the 29th January, 1275, issued by Bishop Peter, decrees that on all festivals, with the exception of grand occasions when there was no great urgency, everyone, rich or poor, should have the right to export or import their goods, on condition of dropping a half-penny into the box of St. Olaf, for the maintenance of the lepers.*

C. *Indulgences.*

The funds of the hospitals were still further increased by the letters of indulgence. Generally a fortnight's indulgence was granted to a person who visited one of the houses of the Holy Spirit, or a hospital, or who left a donation there. On the 27th July, 1248, Cardinal William granted an indulgence to those who wished to show their generosity to the leper's hospital at Lund, the funds of which were then at a low ebb.†

In like manner, Eric, Bishop of Odensee, promised indulgences to those who contributed to the Lazar-house situated near Svendborg.

* 'Kobenhavns Diplomatarium,' i. 24.

† Suhm: 'Danmarks Hist.,' x. 109.

4. Property (formerly belonging to them) of admitted Lepers.

The worldly goods of the admitted leper became the property of the hospitals; but little importance seems to have been attached to such a source of revenue. Then, as now, it was principally the poorest and most wretched members of society who were struck by this terrible malady. No doubt the poor were generally admitted gratis, and the rich had to pay for them. At Enkoeping all that the lepers possessed was seized; at the Stockholm hospital only half their moveable property was taken, and they might dispose of all their immoveable property.*

There was also another arrangement made by the Swedish hospitals, dating from the time of the unification of the Scandinavian kingdoms, according to which, whoever had the means to build himself a habitation to shut himself up in, when smitten by the disease, could obtain the permission, but had to pay to the hospital a "licence" of forty marks.

5. Privileges.

In the matter of imposts the Lazar-houses were relieved in diverse ways, sometimes even amounting to exemption.

Thus, on the 24th December, 1252, Christopher I., desiring to obtain the pardon of his sins, granted to Awos, a hospital of the city of Lund, a letter exempting the peasants and farmers of the hospital, as well as all their servants,† from military service, bailiwick duties, customs, and contributions, and also, as regards the Crown, of all service and taxation.

And on the 21st February, 1326, Duke Waldemar granted to the Lazar-house at Kalundborg a complete franchise with regard to military service, bailiwick dues, duties, contributions, as well as all other taxes, charges, and bonds. This hospital was obliged itself to raise fines of forty marks upon the farmers, peasants, and people of the domain.

* Hedquist: ch. l.

† Suhm: 'Danmarks Hist.,' x. 226.

6. Current Receipts.

This kind of revenue was, as regards the hospitals, the proceeds of fines and similar measures. Thus* the municipal code of Christopher of Bavaria decrees that every baker, who, in the matter of the weighing or making of bread, does not conform to the injunctions of the provost, the mayor, and the municipal council must, as punishment for the first offence, forfeit the whole contents of his ovens to the hospitals of St. George and of the Holy Spirit.

VII.—INSPECTION.

From time to time, generally twice a year, there was an inspection made to see that all was in order. This was at any rate the case in Copenhagen. In King John's letter of the 24th December, 1508, it is decreed that the control will be exercised twice every year by the royal commandant of the Castle of Copenhagen and by the two mayors, and that these three functionaries will have to see that the king's orders are carried out in every detail, without any infringement, and to enforce their being thus carried out.

When there was a special reason for a more frequent inspection—for instance, in the case of complaints arising from any special abuses—the inspection was repeated. Hence it was that, in 1492, in his letter from Naestved (see the documents), King John ordered a monthly circuit to be made, because there had been complaints of the director of the Lazar-house.

These regular inspections hardly ever passed without a little banquet at the hospitals. I have not come across any account of such banquets, but the foregoing conclusion is justified by its analogy with what happened in foreign countries.

Garnier† has told us how the inspections in question were conducted in the town of Dijon.

Every year, and at any time they pleased, the mayors, sheriffs, proctor, syndic, secretary, and the auditors of the accounts

* 'Kobenhavns Diplomatarium,' 171.

† Hist. Notes on the Lazar-house at Dijon, pp. 21–22.

undertook an inspection. At the gate of the Lazar-house the rector and the chaplain were waiting to receive them. Mass having been said in the chapel, the register of the inventory was shown, after which the buildings were examined and the prior was ordered to make certain repairs. Wardens rendered an account of the revenues. The patients were questioned as to their wants, and were given an opportunity of making complaints. Finally, the accounts were revised, and the visit ended by a feast at the expense of the establishment.

In January, 1431, the requirements for one of these feasts were as follows:—

Twelve-and-half rolls of white bread.
Two dozen pies.
Half a sheep.
Four joints of beef.
Cabbages for the soup.
Six capons.
Half-pound almonds for the sauce.
White ginger.
Lard for larding.
Mustard.
A cheese.
Pears.
Spices.
Three pints of wine at two "blancs" the pint; and
Sixteen pints of wine at five "deniers" the pint.

VIII.—DIVINE SERVICE.

A priest or chaplain was appointed to every Lazar-house as the spiritual father of the patients; he conducted divine service in the chapel of the domain, and also said masses for the benefactors of the establishment. The patients themselves were obliged to say a certain numbers of prayers every day, and to observe the fasts prescribed by the Church as far as their state of health permitted of it. (Document of Enkoeping.)

Svendborg's first document appoints that divine service shall be held twice a day, and threatens that the patients shall forfeit their incomes, as was the ancient custom, if they neglect this duty without valid reason. As we shall see further

on, King John, in his letter from Naestved, dated 1492, contents himself with appointing that the chaplain shall say three masses a week—on Sundays, Wednesdays, and Fridays.

Svendborg's first document appoints that the priest shall raise five marks per annum for the three masses which he is to say weekly. If he desire to receive something himself, as one of the confraternity, he may do so on condition that he pays the *introït*. In the letter written by Christian II., dated 1517, and reproduced below, many more details will be found :—

"Always and without fail," in the Lazar-house at Copenhagen, three massess shall be said every day—

On Sundays, in honour of the Holy Trinity.

On Mondays, for the repose of all Christian souls.

On Tuesdays, in honour of St. George.

On Wednesdays, in honour of the Holy Spirit.

On Thursdays, in honour of the body of Jesus Christ.

On Fridays, in honour of the passion of Jesus Christ.

And on Saturdays, in honour of the mother of God, at least, if it coincides with any other important festival.

At every festival there shall be high mass and a sermon. There shall be four processions with mass, and on the vigils prayers shall be offered to God for the king, his ancestors and successors on the throne of Denmark, as well as for all other Christian souls.

The document for Enkoeping (reproduced later on) orders *ecclesiastics attainted with leprosy* to add to their breviary the weekly recitation of three times seven Psalms and twice seven vigils; *laymen versed in the Holy Writings* must recite daily the Hours of the Holy Virgin, and, if they know them by heart, they shall add daily three Psalms and two vigils for the dead; while simple laymen (without education) need only recite every morning ten paternosters and ten aves, and the same every evening. On very high festivals this number is to be raised to thirty, besides six paters and six aves during the first, second, third, sixth, ninth, and twelfth hours, which, on the occasion of those great festivals, gives a total of seventy-two prayers of each sort. Besides this, every day of the year, with the exception of Holy Thursday, Good Friday, and Holy Saturday, the bell shall be tolled, and, upon this signal, everyone must fall on his knees and say three aves.

IX.—FUNCTIONARIES OF THE HOSPITAL.

Originally the director of the establishment was generally styled purveyor or rector.

He it was who admitted patients, who watched to see that the rules were obeyed, who received and expended the donations, who represented the establishment before the tribunals and made the contracts for all the sales and purchases of the community, subject however to the consent of the patients. (See Naestved and Svendborg.)

In Switzerland, the "Siechenmeister" or "Hausmeister" elected by the patients held a monthly chapter with the latter.* The said functionary took the chair in the midst of the assembly, whence he presided. The lepers sat around him in the order of seniority. The functionary corresponding to the rector was called *bailiff to the lepers* ("Siechenvogt"). The rector (or, to employ the same term used in Svendborg's document, *the defender*) was not domiciled in the hospital, and only resided there at the time of the decadence of the hospitals, when they were let out in fief. This "defender" was usually a citizen of the same town, a man of some social standing, a member of the municipal council, or entrusted with other confidential affairs.

After the rector came *the priest*, whose office has been defined in the section on Divine Service. The chapel had (at any rate at Svendborg) a special churchwarden, probably in the person of a citizen domiciled outside the hospital.

After these functionaries, Svendborg's first document mentions the squire or mounted valet, the lepers' confidential man, who rode or drove about the district and took charge of the quest money. He was elected by all the brethren, and was obliged to reside in the establishment, which generally consisted of a collection of little houses, of which, at Svendborg, there were twenty-six in 1589. His salary was double that of his *confrères*, but he had to provide the servants with food, drink, and lodging.

The rector could not on his own responsibility send the

* Lesser, p. 13.

peasants connected with the hospital away from the farms; he had to obtain the consent of the squire and the churchwarden.

The church alms-box had three keys. The rector had one, the priest one, and the third was confided to the care of the churchwarden and the squire, and nothing prevented the latter from opening the box when they deemed it necessary.

What are now called "hospital attendants," were then called "healthy friars." We find detailed mention of them in the Svendborg document. They were admitted on the same footing as the lepers, although King John, in his letter from Copenhagen in 1508, makes it appear that the sick were better off than the healthy. It is there expressly said that these "healthy friars" shall work for the infirm, and devote all their care to them. Besides this, they had to regulate their manner of living with a view to paying "God's alms." Their shares and profits were the same as those of the sick patients. At their death all their property remained in the possession of the monastery, and their private means served to the needs of their brethren and sisters.

The Lazar-house at Svendborg, which originally commenced with a dozen lepers, had, later on, eighteen, as well as eight healthy friars; subsequently to 1590 there were twenty-four patients and not more than four healthy friars; of these latter, two went out collecting alms, while in their absence the other two nursed the sick.

The healthy friars might be married men, but, if the wife died, the widower might not marry again.

As we shall see further on, King John, in his letter from Naestved, forbade the hospital to admit healthy friars from the commencement of the year 1492; in compensation, the rector is enjoined to give the patients attendants who will nurse them, and will employ themselves in feeding and waiting on them, and in keeping their clothes clean, as well as in attending to all their wants.

X.—ALIMENTATION.

The Enkoeping regulations give the most details for the maintenance of the lepers. They were edited by Archbishop Birger (1367–83), (see later on). We there find it prescribed that each patient shall have daily two loaves made of well-sifted barley, and that on high festivals, of which there are twelve, he shall have besides a white loaf (panis siligineus). Further, on each of those great days, the patient shall be served with half a pitcher of good unadulterated beer, this ration being for ten persons. In Lent, the daily ration for each person shall be a white roll and a barley loaf, with two herrings, and the same on other fast days not in Lent. The actual Lenten consumption shall include fifty cod fish and fifty dried pike, a measure (bushel) of peas, two smoked salmon, &c. &c. Every patient shall receive weekly, for his own consumption, half a pound of butter, and may consume weekly, conjointly with nine other table companions, half a "talent" of lard and a talent and a half of smoked meat. In summer, an urn of curdled milk shall be served for common consumption twice a week, and on Saturdays an urn of fresh milk that has not been skimmed. Every working-day a gallon of beer shall be served for from four to eight persons; "it must not be small beer, but a good beer seven days old, and the vessel must be full." If the beer served be new, two extra pitchers of it must be served. The steward must supply the patients with the necessary kitchen utensils, such as three cauldrons of different sizes, a pitcher, and two little vessels called urns. Each patient received annually at Martinmas, for his dress, eight yards of "pinchina" (a thick woollen stuff); and, at Christmas and Midsummer, a pair of shoes. Those who were not too ill had to help in the work. The hospital employed a servant besides, whose salary was one "marc" in specie per annum. The patients might not have their own personal servants without special permission from the rector.

King John, in his letter cited later on in this work, states his orders less precisely. He contents himself with saying in a general way that the rector must provide the patients with

clothes, bedding, and such other things as they may need. This same functionary must also supply their food and drink as follows :—

On feast days: lard, beef, cabbages, and a dish of such fresh food as the season permits of, or some other dish instead. In the morning, beer at discretion. This is what one might call a good allowance.

At a later epoch, the number of patients having diminished, the rations were naturally larger, but only in places where the governors did not monopolize anything.

In his register of inspection for the year 1589,* Bishop Madsen tells us that at the Svendborg hospital there were twenty-four peasants to maintain twenty-four poor patients, and that they could each easily have at least five tons of grain, half a ton of butter, sheep and pigs, as also the tenth part of the cattle of Egensée and of Soerup, and could share in the produce of a fine garden, which might sometimes be expected to supply each of them with two tuns of cider.

In almost all the Lazar-houses of France the alimentary regulations were very explicit. At St. Ladre's, in Metz, each leper received daily a roll of white bread, three "sols" (halfpence) weekly, and annually forty "sols" for clothing, twelve "sols" for lard, and one hundred faggots of wood in two bundles. Besides all this, he had a share in the vintage of the commune's vines.†

In 1556, at Troyes,‡ each patient received forty "sols" a month, fifty ounces of bread a day, and three casks of wine a year, if a man (a woman only received two), as well as eight loads of fire-wood, of which one half was given in wood and the other half in money. With these forty "sols" the patient had to pay his nurse, whose wage was from seven to eight pounds a year. These nurses or attendants had to be middle-aged women, of modest and respectable character. In spite of this, however, when the burgomasters and curators made their annual inspection in 1575, they found three women

* Engelstoft: 'Samlinger til Fyens Historie og Topografi I. B.' Odense, 1861, S. 1–45.

† Héry, passage cited p. 77:

‡ *Ibid.*

pregnant, of whom only one was married. One of the delinquents was in that condition for the second time in the ten years she had been in the establishment, and she had attracted bad girls to the house. The patient had to provide his own hoods, shoes, and clothes; and, lastly, these same forty sols had to suffice for his expenses in oil, meat, and other necessary articles of food. With the money from the four loads of fire-wood he bought his medicaments, ointments, linen, sugar, prunes, and "other things necessary for such patients."

Those who wish to have an excellent picture of the interior of a Lazar-house in mediæval times need only glance at the description of the mode of service adopted in those days.

XI.—LAZAR-HOUSE REGULATIONS AT TROYES.*

1. Acts of violence, abusive or provocative words are punished by a fine of at least five "sols tournois," of which half accrues to the offended party.

2. Lepers and their attendants are forbidden to swear, to blaspheme God and His saints, or to use indecent language. The fine on a repetition of the fault will be doubled (ten sols); but on a third transgression the fine will be arbitrary.

3. Every leper must immediately inform the chaplain, or the administrator, of any infractions of the rules of which he may have been a witness; otherwise he will be considered an accomplice, and liable to the same penalty as the offender.

4. Every patient who is not legitimately prevented must be present at mass, vespers, and at divine service morning and evening, when celebrated in the hospital chapel, in order to offer up prayers for the founders and benefactors of the establishment. The consequence of the neglect of this duty will be the suppression of the ration of bread.

5. Lepers are forbidden to contract marriages without special permission, on pain of being sent away and losing their pension.

6. It is forbidden to travel or to go on pilgrimages without special authorization. The patients are permitted to walk on a railed-off piece of ground outside the establishment, but they may not enter the town.

7. Only the attendants may pass the barrier and make purchases at the market for the needs of the sick, but they

* Harmand: 'Hist. Notice on the Lazar-houses of the City of Troyes,' 1849, cited by Héry.

must not touch any of the objects that they bargain for, before buying them. And, in order that they may be easily recognized, they must, under pain of imprisonment or of arbitrary chastisement, wear a piece of red stuff on the most conspicuous part of the shoulder.

8. When they present themselves to fetch the bread on Mondays and Fridays, they must stand at the baker's door. They must not enter the shop, nor touch any other bread than that baked for the lepers, under penalty of a fine of twenty "sols tournois" and of corporal punishment.

9. The attendants must not be natives of the town. [This clause was observed so strictly, that if, in spite of it, a woman was employed who was a native of the city of Troyes, and was later on attainted with leprosy, she was expelled from the hospital, and also lost her right to the pension that every leper who was a citizen of Troyes could claim.]

10. Patients are forbidden to exact from a new-comer the "welcome" fees. Those who desire to treat the inmates of the hospital must not spend more than ten "sols tournois" upon this welcome; in the contrary case the administration will return to the new-comer the money of which he has been defrauded, at the expense of those who have partaken of the feast.

Punishment naturally awaited those inmates who escaped from a Lazar-house. We read the following in the Enkoeping document:—

No one, however great he may be, or of whatever rank or condition he may be supposed to be, having once entered the precincts of the Lazar-house, may go out of them to churches, banquets, and other places to which he may be invited. In the contrary case the patient will find his ration for the following week withdrawn, and may even incur more severe penalties.

Israels* tells us that a leper was evicted from Walcheren for two years because he had entered a house where healthy persons were living, and had given them drink from his pitcher. Another was put in the pillory for half an hour for having stepped inside an inn. A third received twenty-four lashes, and was banished for four years, for having had relations with a girl in a public-house.

* "Bijdragen tot de geschiedenis der Lepra in de Noordelijke Nedellanden." Nederl. Tijdschr. v. Geneesk., 1856, p, 161.

In 1321 two lepers escaped from Schenalle, in the valley of St. Dié.* They were arrested, and the provost of the Duke of Lorraine had them whipped and thrown alive on the stake, conformably with a *papal bull which condemned escaped lepers to be burnt at the stake*. The provost in question had no right whatever to do this, for they belonged to the jurisdiction of the ecclesiastical tribunal, and, in consequence, the Chapter of St. Dié put the provost under a ban, and carried the matter before Duke Ferry IV., who ordered his provost to hand over the lepers to the Church. Two figures were therefore made, which the provost handed over to the Chapter; the latter condemned them to death and delivered them back to the secular authorities, who thereupon renewed in effigy the cremation of the lepers.

XII.—DECLINE OF THE HOSPITALS.

Thanks to the rigorous measures taken against lepers, the number of lepers was constantly decreasing. Now, in the sixteenth century, the numbers were so reduced that the Crown was able, without encountering any noteworthy opposition, to claim the right of feudality over the Lazar-houses, and to let them out on lease to strangers, that is, to persons who certainly had to maintain them well, and to see that the patients were well cared for, but who nevertheless made capital out of these charitable establishments.

In order to picture to ourselves the state of things, we have only to read the numerous letters, full of complaints, which poured in at that time, or to read the tales of the monk, Poul Eliesen, the Carmelite who rendered such great service in housing the sick in hospitals.† He says:—

I have there (in his essay on the care of the sick) shown how many hospitals began with good intentions, and under remarkable conditions, but fell very low, and suffered grave

* According to Hecht. Héry (work already cited, p. 102).

† Secher: Edition of the Works of Poul Eliesen, i. pages 453–54. Compare also, 'Danske Magasin,' iii. R. iii. B, pages 108–109, containing the complaints of the citizens of Visby to King Christian III. against the governor, Henrik Rosenkrans, and on the state of the Lazar-house.

abuses from the fraudulence of their administrators, under the government of covetous and negligent princes. Their name and revenue remained, but the profits and advantages passed to the administrators. In the way of refuge, help, and consolation, the patients received nothing.

In another passage he expresses himself still more explicitly:—

We note the fate of more than one hospital in these days, *viz.* that after having been in a flourishing state for a long period of time, and having afforded the patients care and consolation, and the revenues and donations having, as is reported, increased sufficiently to maintain these hospitals in good condition, they have been invaded by princes and great lords, who have feoffed them to their servants, the latter having aided them in very unworthy enterprises. Letters and decrees were issued that whoever lived in certain districts should furnish the Lazar-house with bushels of wheat, barley, and oats, and that, in return, these districts should have the right to send to this hospital the sick belonging to their land, and that these should receive assistance there. The conditions thus imposed are strictly observed in some places, where, by the aid of the law-courts and of force, help is extorted from the peasants; but as to the work for which this assistance is made obligatory, and is recognised as such, it is in a state of rapid decline. There are hospitals which are in the hands of a feudatory, and sometimes of more than one, but no sick are to be met with, except in certain parts, where the revenues are the smallest.*

The Swedish Lazar-houses survived the Reformation. When, following the decision of the Swedish Parliament, the nobility fell upon the convents, and also laid hands on the hospitals and houses of the Holy Spirit, King Gustavus Vasa, in 1528, wrote a letter for the protection of these establishments. He forbade† the levying of contributions from the houses of the Holy Spirit, both hospitals and infirmaries, and the defrauding them of funds intended for the maintenance of the poor, "for these depredations are offensive to God, Who has commanded us to provide for the sick as much as possible." If anyone thought he had a right to the property of the said houses, it

* Secher's Edition of Poul Eliesen, i. 154–55.

† Hedquist: work already cited.

must be decided by law, and not by royal command (Recessus). But, in Sweden, as everywhere else, the houses and hospitals of the Holy Spirit were none the less turned into ordinary hospitals.

In Denmark a parting ray of sunshine lighted up for a moment the horizon of the history of the decadence and the transformation of the hospitals, for to the Carmelites was entrusted the mission of maintaining the Lazar-house situated outside the city of Copenhagen, and Poul Eliesen was nominated first prior of the monastery. There it was that the noble yet misunderstood Poul Vendekaabe (a surname that signifies "turn his cast-off clothes") found occasion to realize his ideas as to the care of the sick. But, in 1522, he translated the 'Principles of Erasmus of Rotterdam,' and ventured so far as to preach a plain-spoken sermon to the court, which cost him the loss of his Majesty's favour, and was the cause of his being expelled from the capital.

After the diet held at Odensée on the 1st August, 1587, it became more and more evident that the supremacy of the Catholic Church was drawing to an end. The mendicant monks were the first to be affected, and then the inmates of the seigneurial monasteries; for the nobility and the monarchy coveted their wealth. The convents of the mendicant orders established at Viborg, Randers, Kolding, Aarhus, Copenhagen, Aalborg, Veile, Koege, Naestved, &c., were abolished, which led to scenes of violence in some places, and these establishments were diversely affected to the profit of the above towns. The Reformation transformed most of the Dominican and Franciscan cloisters into hospitals, and also the Lazar-houses of the Holy Spirit.

In the meantime the enfeoffment of the hospitals was prohibited, but deacons were appointed, honest and thrifty men, who were to be the overseers of the sick, and to supply them with clothing, food, and other necessaries by means of disposable revenues and the "God's alms" given to them. (See the decree of Christian III., 1536. Further particulars on this subject will be found in the chapter on Legislation.)

In the year 1542 the Lazar-houses were closed as independent establishments. Their chapels continued to be used

for some time longer for practice in preaching by young students from Copenhagen and Aalborg. Their cemeteries furnished a burial place for foreign mountebanks or paupers. (See Viborg and Odensée.)

The transformation of Lazar-houses into general hospitals did not take place in Catholic countries till a much later period. From the middle of the sixteenth century the decrees of the Kings of France (cited by Héry)—*e. g.* those of Francis I., 19th December, 1543, and 15th January 1545, and that of Charles IX., April, 1551—complained that the lepers were badly cared for, and that their revenues were monopolized by intruders.

The transformation into ordinary hospitals took place in France on the 24th August, 1693, and affected 1133 asylums, situated in 1130 communities.

B. INFORMATION RESPECTING DANISH LAZAR-HOUSES.

I have discovered some sources of information respecting twenty-four Lazar-houses, but unfortunately they rarely satisfy inquiry except as to the mere fact of the existence of such establishments. The oldest of these houses seem to have been those in Zealand, and more especially those whose foundation may be attributed to Bishop Absalon, such as the houses at Kalundborg, Speilsby in Moeen, Ringsted, Roskilde, and Copenhagen. The figures attached to the names in the following list show the dates of the most ancient documents relating to the Lazar-houses in question.

Between 1160 and 1200 Moeen.
In 1171 Kalundborg.
1253 Roskilde.
1260 Ribe.
1261 Ringsted.
1261 Kopenhagen.
1263 Randers.
1263 Viborg.
1295 Odensée.
1363 Naestved.
1372 Svendborg.
1389 Bregerup.
In 1418 Nykoebing-sur-Mors.
1443 Elseneur.
1492 Horsens.
1505 Slangerup.
1505 Stubbekoebing.
1513 Aalborg.
1525 Kolding.
1541 Aarhus.
1547 Thorshavn.
1551 Bornholm.
1562 Grenaa.
? Holbœk.

Copenhagen.

The Lazar-house of Denmark's capital was situated on the further side of the Lake of St. George, at Vodrofgaard, and contiguous to the old royal road called Gammel Kongevei. This hospital had a garden, field, meadow, and another piece of land, with a windmill, besides houses in the country. In 1543 mention is made of a St. George's rivulet, probably that which later received the ironical name of Rosenaa (rivulet of roses).* The Lazar-house is represented in a view of the town in the year 1572.† On the left, in the foreground of this illustration, may be seen the Lazar-house and its four little buildings in the inside of the enclosure; on the right, the place of execution, where four malefactors are hanging on the scaffold.

The first mention of the Lazar-house of Copenhagen dates from 1261, at which time Peder Olafson, of Kalveris, left by will to the hospital of Havn (Copenhagen) ten silver marks.‡ In 1275 mention is made of an alms-box of St. Olaf, which must have been affixed near the shore, and of which the contents were dedicated to the maintenance of the lepers.§ The seal of the hospital in question represented St. Olaf. In 1292 Gytha, daughter of Sir Skjelm Bang, and widow of Sir Esbern Karlssoen, added to the numerous donations in her will the sum of half a mark for the hospital of the lepers (*hospitale leprosorum* de Koepœndœhafn).‖ In 1299 this same hospital received from Jakob Herboernsoen a donation of two "oere," and, in 1304. from the priest, Hinze Bagge, a donation of two marks.¶ In 1307 Cécile Litle gave one mark to the hospital and two marks to the lepers living in it.**

This hospital received considerable sums in donations; in 1368, Hemming Pedersen Knoeppel, a leper who was interned there, presented it with a piece of land situated in the town.

* O. Nielsen: 'Kobenhavn i Middelalderen,' Kbhv., 1877, p. 8.
† Pontoppidan: 'Origines Hafnienses,' p. 226, &c.
‡ Suhm: 'Hist. of Denmark,' x. 975.
§ 'Kbhvs. Diplomatarium,' i. 24.
‖ Suhm: xi. 120.
¶ Pontoppidan's 'Annales eccl.' ii. 783, and Tillœg. 2.
** *Ibid.*, 94.

In 1368, Copenhagen was ravaged by the Hanseatic League, and the hospital was destroyed, for the ancient land-register, which dates from about the year 1380, speaks of a piece of land belonging to the town, on which the house of St. George *had been* built, where lepers were maintained; but this establishment was rebuilt not long after, and, in 1415, Niels Pedersen, a gentleman surnamed Olde Niels, endowed the hospital with an annual revenue, consisting of one pound of corn, supplied by a farm at Oelsemagle.

In 1546, this same hospital possessed five properties in the interior of the town; among others, the buildings of St. George at the corner of the Cattegat and the little street of St. Clement (St. Klemensstræde), of which mention is made in 1478, as well as a house in Water-mill Street (Vandmoellestræde).* This hospital had its own farm, administered for its expenses, and of which mention is made in 1508, as well as later. According to the general opinion,† the said farm must have occupied a site in the neighbourhood of the inn, Gammel Avlsgaard (old farm), which has inherited the name.

In the time of King John (Hans) the Lazar-house called St. Joergensgaard had become, like all the other establishments of the kind, a royal feof, and in 1502 it was leased to Dr. Peder Albertsen, a municipal councillor and for some time vice-chancellor of the university. This functionary had the benefit of the revenues arising from the immovable property of the hospital. As to the poor, it is supposed that they were reduced to living on the alms collected by the members of the hospital when they drove round the country to beg for corn and victuals. In 1506 this state of things was sanctioned by King John with regard to the circumscription called Lille Herred. (See among the documents the letter of 24th November, 1508.)

Between 1517 and 1522, after Dr. Peder Albertsen's death, the Lazar-house of Copenhagen was let for ever to the Carmelites of Elseneur for the maintenance of their college in St. Peter's Street, but the monks were obliged in return to provide twenty poor people with clothes, food, lodging, light,

* O. Nielsen: 'Kobenhavn i Middelalderen,' i. p. 185.

† Roerdam: 'Kobhvns Kirke og Kloster i Midd.' p. 334, note 50.

and fuel. (See among the documents the letter of the 8th December, 1517.)

Frederick I., having besieged Copenhagen and taken possession of the hospital, made a present of it for life, by letters patent dated 1523, to the monk Jep Heye, on condition that the latter should ensure the proper performance of divine service, keep the buildings in repair, and provide for the maintenance of the sick coming from the circumscriptions paying him tithe; and also supply them with such food as they had always been in the habit of receiving.

But, here at Copenhagen, things happened just as in the rest of Denmark and in other countries, and to the misfortune of these charitable institutions their administration fell into the hands of the Crown, who feofed them to lords whose object seemed to be to make as much out of them as possible.

It would seem that at this period the inmates of the Lazar-house at Copenhagen were not well cared for, for, in 1528, the patients of St. Anne's hospital declared that they would prefer to be thrown into the sea rather than be removed to St. George's hospital.

In 1530 the hospitals of St. George, St. Gertrude, and the Holy Spirit were united, in order to form one large hospital, which later on was called Vartou.

Nevertheless, in a letter from Frederick II., dated August, 1530, one finds the following :—

Our will and pleasure is that the patients interned in the hospitals of St. George and St. Gertrude shall be removed to the other hospital, on condition that a good establishment for lepers be always maintained in the place occupied by the Lazar-house of St. George outside the town. The premises, fields and meadows of the domain of St. George shall henceforth be used by the patients of the two hospitals for the raising of cattle necessary for their maintenance.

In the year 1538 Christian III. decreed that :—

Henceforth the hospital of St. George, comprising the immoveable property surrounding it and the funds belonging to it, shall pass to and shall remain in the hands of the prior, director and administrator of the hospital of the Holy Spirit. The said prior shall provide for the maintenance of the lepers

and the sick kept apart outside the town in the before-mentioned Lazar-house, because their malady does not allow of their being kept with other sick in the hospital situated in the interior of the town.

On the 17th March, 1600, St. George's was still a special establishment *for persons affected with contagious diseases*, and it was dependent on the hospital of the Holy Spirit. Its attendants comprised a male and a female inspector, two nurses, a shepherd, and a field-keeper. There was room for ten patients in the Lazar-house, while the large hospital could accommodate fifty.

In 1607 the hospital of the Holy Spirit was transferred to Vartou, and in 1609 the Lazar-house of St. George ceased to exist as such, being let on lease to Morten Wesling, in consideration of an annual rent of eighty "rigsdaler."

However, a long time after, ten beds at Vartou were designated *St. George's beds*. In 1603 St. George's hospital is mentioned as a place in which young theological students practised preaching.

Probably the Lazar-house at Copenhagen was demolished under Christian IV., but according to Pontoppidan the destruction of St. George's did not take place till 1659, during the siege of Copenhagen.

Roskilde.

The asylum established at Roskilde for lepers was situated on a hill between the town and the suburb of St. Joergensbierg, and was called *Mount St. George*, or simply "Bierget" (the mountain).

According to old chroniclers,* this Lazar-house must have been founded in 1253, the same year in which Bishop Johan Erlandsen removed the hospital of the Holy Spirit into the interior of the town. But this account does not agree with the letter of donation, dated 1344, and cited below.

On the 6th December, 1320, Benedict, head of the Lazar-house near the church of St. Clement of Roskilde, being authorised by the community, sold to the convent of St. Claire a plot of land, with running water,† for a mill.

* Behrmann: 'Roskilde Beskrivelse,' Kbhv. 1832, p. 231.

† Suhm: 'Danmarks Hist.' xi. 22.

It is not known where the church of St. Clement was situated, but possibly this church was no other than that of St. George, which, being situated near the shore, would account for the name, for St. Clement was the patron of sailors.*

By a letter of donation, dated 1344,† Johan Nyborg, Bishop of Roskilde, gave two mills to the house of the Holy Spirit, which he designates *the new hospital*, a proof that the Lazar-house of St. George had been founded previously.

The statute of Frederick II., bearing date 1570, joins the revenues and lands of the hospice of the Holy Spirit to those of Mount St. George's for the benefit, the well-being, and the assistance of the poor and indigent.‡

The annual revenues of Spidallbierg (Mount St. George) consisted of thirteen pounds of rye, twenty-two pounds of barley, twenty-one tons of oats, one barrel of butter, thirteen sheep, seventy geese, twenty-eight chickens, three marcs four sous "grot" (Bremen money), and four hundred and twenty-four Danish sous.

Ringsted.

At Ringsted there was once a hospital called St. George's, no doubt identical with that which the documents of 1261 and of 1307 called *hospitale leprosorum Ringsthætе*.§

In 1631 this hospital was sold, and, with the money realised by the sale, four beds were presented to Vartou.‖

Slagelse.

There was also once here a convent or hospital known by the name of St. George, and called *hospitale leprosorum Slaglosiæ*.¶

On the 26th April, 1569, this hospital was let to Marguérite Basse.

Heilmann,** who, in my opinion, is mistaken about the state of things in mediæval times, says that the Lazar-house of St. George was an annex of the convent of the Holy Spirit.

* Kornerup: 'Roskilde i gamle Dage. Kbhv.' 1892, p. 213.
† Pontoppidan: 'Ann. eccles. Dan.,' ii. 168.
‡ Behrmann: pass. cited, p. 231. §Pontoppidan: 'Danske Atlas,' iii. 39.
‖ *Idem*. 'Ann. eccles. Dan.,' iii. 798. ¶*Idem*. 'Danske Atlas,' iii. 20.
** 'Bidrag til Slag. Bys Hist. Slagelse,' 1885, p. 64.

There was a change in the situation of this foundation in 1580, for Frederick II. ordered Peder Retz, lord of Antvorskov, to remove the poor and the sick, hitherto supported and nursed at Antvorskov, to the hospital at Slagelse. The result was that the hospital at Slagelse levied tithe on more than twenty parishes.

Kalundborg.

The hospital of this town was situated outside the former east gate, in the suburb, which, for this reason, like that at Roskilde, still bears the name of St. Joergensbierg (Mount St. George). Many documents* maintain that this hospital was named after St. Nicholas; but that is not in accordance with the general rule, and, moreover, all the documents do not agree as to this misnomer.

On the 3rd May, 1171, King Waldemar I. took this hospital under his protection. Waldemar, Duke of Schleswick, who only reigned in Denmark during the exile of Christopher II., renewed this letter of protection on the 21st February, 1327, during his sojourn at Kalundborg, confirmed the title-deeds of the hospital, and granted it the general franchise (also enjoyed by the hospital at Lund) relating to military service, crown taxes, and all other taxes, charges, and bonds. The establishment was even permitted to appropriate the fines of forty marcs, collected from the so-called crown-peasants (who held long leases), from the ordinary peasants, and from the servants of the domain, the king only reserving for himself the right of pre-emption on the flotsam. Waldemar Atterdag, when on his famous travels in foreign parts, being at Avignon, received from Pope Urban V. sundry relics, some of which he presented to different churches in Zeeland. On this occasion the hospital of Kalundborg (St. Georgii in Kalingeburgh) received "a little of St. George," that is, a little relic of St. George. † There is no mention of St. Nicholas in this last document. It was, perhaps, in consideration of this relic that the successors of Waldemar Atterdag showed so much interest in the

* Fr. Algreen-Ussing: 'Efterretninger om Kalundborg,' Kbhvn. 1868, og Kalundborg Avis 1859, No. 22, samt Suhm: xii. 151.

† 'Kobenhavnske Selskabs Skrifter,' Kbhvn. 1747–48, iv. 136–7.

hospital, as the letters of protection from the following personages testify :—

From Queen Margaret, dated 6th April, 1391.
,, Eric of Pomerania, dated 16th December, 1414.
,, King John, dated 25th July, 1500.
,, Christian II., dated 2nd October, 1515.*

By royal order of the 29th April, 1564, which may be found in the secret archives of the State, the Lazar-house and Crown-domain of St. George was leased for life to Anne Lauridsdatter (daughter of Laurids), wife of Villads Brochmand, in the state in which it then was under her husband, but on condition that she should constantly maintain four poor people, should watch over the interests of the officials, and keep the property in good order. By royal letters issued at Roskilde the 15th July, 1579, this property passed into the hands of Michel Jensen under analogous conditions.

On the 19th October, 1611, at Copenhagen, Christina, widow of Peder Hammer, came into possession of this domain on condition of maintaining five patients there.

In 1627 the Lazar-house of Kalundborg was suppressed, and the revenues of the domain were devoted to the founding of six beds at Vartou.†

Næstved.

This town had its Lazar-house at Oderup, in the parish of St. Martin. This hospital was intended for the reception of all the lepers of the circumscription of Tybierg.

The archives of Vordingborg‡ contain a letter, dated 1363, in which it is stated that Erich, deacon of St. George of Næstved and Aenglicken Smale (probably a brother belonging to the Lazar-house), having obtained the consent of all the brotherhood there, resigned to King Waldemar their property of Rynebech, consisting of a "marc" of land, as well as all its dependencies, which had been bequeathed to them by Hennickæ Wæsel.

Among the documents found in the castle of Roskilde, there

* Hofman's 'Fundatser,' x. pp. 175–76.
† *Ibid.* pp. 44–48.
‡ 'Aeldste Archivregistraturer,' i. 135.

was one bearing an inscription relating to the mortgage of ten "mares" in silver on a domain situated at Tormarck; the act is dated 1400, signed by Peder Deene, and addressed to the rector of the Lazar-house at Oderup.

In 1631 the revenues of this hospital were devoted by Christian IV. to the founding of nine beds at Vartou (Kalundborg had six, and Ringsted four). Hofman* mentions the revenues of these hospitals.

Vordingborg.

Here also, outside the city gates, there was a St. George's hospital, of which Hans Scribe acquired the temporary use, by act dated 1516, on the express condition that he should maintain the church and the estate.†

Speilby in Moeen.

(Synonyms: Spidelsbu, Spitelsbye, Spedelsgotz, that is: village of the hospital). This place is mentioned for the first time in the *Liber Monasticus Soranus* (secret royal archives).

Joh. Paludan writes on this subject :—‡

According to tradition, there was always near Stege, at the place called "field of the mill," a large St. George's hospital.

We may conclude that this ancient hospital of Moeen was founded in the time of Bishop Absalon, between 1160 and 1200, but we find no indication as to the amount of its revenues at the time of its foundation. It seems probable, however, that this hospital hardly possessed other lands than those which it cultivated itself, and perhaps Klosterskov (the forest of the convent), a property now shorn of its woods, and dependent on Norfeldt. To its revenues were added the alms of the villages, the proceeds of the chapel-box, the pious legacies left by will, the proceeds of the sale of the arms and armour of warriors killed in battle, and the booty taken from pirates, for custom decreed that chapels and churches should often be enriched in this manner.

In the fourteenth century the nobility would have appro-

* 'Aeldste Archivreg.' iii. p. 337, F. 46.

† Hofman's 'Fundatser,' x. pp. 44, &c.

‡ Pontoppidan: 'Danske Atlas,' iii. p. 105.

priated the wealth of this hospital by craft or by force. A mortgage, affecting the domain of Elmelunde, and drawn up in favour of Bishop Jens Andersen of Roskilde, informs us that in 1420 Speilsby was occupied by a royal officer named Ficke Laureusson. Nevertheless, ulterior documents mention this hospital as a monastery.

Subsequently to 1555, this establishment was given in fief to Oluf Holgerson Ulfstand, bailiff of the castle of Nykoebing, and, after his death in 1528, to Johan Urne; but, in 1536, it returned into the possession of the Crown, and was given in fief to Claus Eggertsen Ulfstand, on condition that he should suitably relieve the poor and the sick in the hospital.

In the time of Christian IV. the hospital was in possession of nineteen farms at Udby, Speilsby, and Ullemark, and also of some houses, which were expected altogether to produce a revenue consisting of $111\frac{1}{2}$ tons of corn, 18 pigs, 37 couples of fowls, 18 score of eggs, a keg of butter, and 8 "rigsdalers."*

On the 12th December, 1618, the king suppressed the convent of Spegelby in Moeen, and diverted its revenues to the hospital of the Holy Spirit at Copenhagen (the Moeen beds). The eight patients at Spegelby were removed to Copenhagen and installed at Vartou. The friar-provost at Moeen had the right to dispose of eight beds in the latter hospital.

But until 1679 Speilsby kept its chapel, and a priest to do the duty.

Odensee.

The Lazar-house of this town was situated near the East-gate, to the north of the street which led there, and on the further side of the mill called Pientemoelle.† According to a plan made in 1677, there was a little street, then called St. George's alley, and now known as Skroeppestræde. It descended on the left to the side of the pond of Pientemoelle, and led no doubt to the entrance of the hospital.‡ Probably the etymology of the word *Skræppestræde* is to be found, not

* Jensen: 'Moeen. Stege,' 1866, p. 99; et Bendtsen: 'Moeen i Middel.' p. 29.

† Nielsen: 'Kobenhavn i Middelalderen,' ii. p. 53.

‡ Vedel Simonsen: 'Bidrag til Odense Byes aeldre Historie,' I.B.I.H. p. 197.

so much in the name of the plant *Patience*, which is in Danish *Skræppe*, but rather in that of the rattle, which the lepers used as a sign to passers-by to keep at a distance. The largest of the hospital estates was likewise called Skræppe-gaarden (farm or domain of the rattle).

The church of this domain of St. George's hospice was consecrated to St. Laurence. The first document which refers to it is dated 1295, Niels Hamunden of Husby bequeathing that same year three "marcs" to the lepers of Odensee.* However, this legacy only renders the existence of a hospital probable; but the existence of the hospital in question is attested by two documents: one, bearing date 1467, establishes the fact that nine fields belonging to the Lazar-house had been sold to one of the convents of Odensee; the other proves that Albr. Hyntze sold some immovable property to the convent and chapel of the Lazar-house.†

In the year 1516, Erik Hansen, to whom the Lazar-house at Odensee had been given in fief, died, and the king's servant, Niels Person, was installed there as his successor on the usual conditions. In 1525, the holder of this fief was Master Anders Glob, treasurer of the king's finances and provost of Odensee. This same year the succession was promised to Tyme Lindegaardt.‡

From the time of the Reformation the Lazar-house became an integral part of the general hospital of the Island of Fionia, and belonged to the jurisdiction of the convent of the Grey Friars.

Subsequently to 1551, the dead, for whom free burial-ground was desired, were interred in the cemetery of the Lazar-house. Pontoppidan mentions the hospital of St. George as still being in existence in 1636.§

Trap‖ says that Gillestedgaard and the Eiby mill are named together with five other estates and thirty houses under

* Vedel Simonsen: 'Bidrag til Odense Byes aeldre Historie,' I.B.I.H. p. 196.

† *Ibid.* i. 2, 166, 167.

‡ *Ibid.* ii. 50, 136, and 164.

§ 'Danske Atlas,' iii. 441, and vi. 607.

‖ 'Kongeriget Danmark.' Udg. 1858, i. 591.

the title of *Community of St. George.* Probably this is taken from an inventory of the ancient hospital of St. George.

Svendborg.

Bishop Bircherod published a letter of indulgence, recorded in his collection of official deeds, dated 1372, signed by Erik, Bishop of Odensee, and by several other bishops. It promises indulgence to :—

Pœnitentibus et confessis, qui ad ecclesiam Sancti Georgii prope villam Svineburg, calices, luminaria, vestimenta, libros, ornamenta, etc. donaverint, iis item; qui infirmis inibi commorantibus pro victu seu vestitu vel, etc. eleemosynas largiti fuerint.

This hospital, the origin of which is unknown, is the only one which has found an historian, viz. Bishop Engelstoft,* whose notes are very interesting.

On the 4th July, 1374, at a meeting of parliament (Danehof), sitting at Nyborg, Waldemar IV. issued a decree by which, first, the estate of Sudorp was adjudged in perpetuity to the lepers of Svineborg, notwithstanding the investiture which Laurentius Jensen had received by letters patent from the provincial parliament of Sundsherred, and (by which), secondly, the estate of Slaethebaek, situated, like the preceding one, in the Sundsherred, was likewise adjudged to the lepers, notwithstanding the investiture which Marine, daughter of Tyke, had received. The king declared this judgment to be irrevocable ("stamped with eternal silence"), and prohibited one and all from undertaking anything on these estates without the consent of the lepers.† This hospital, therefore, was already in existence in the fourteenth century, and Hofman and other writers are wrong in attributing the founding of it to Brigithe, daughter of Christen, wife of Marshal Claus Roennow (died 1486). The assertion of these authors is based on the nobiliary of Jens Bille,‡ where the donation is related much as follows :—

* 'Videnskabernes Selskabs Skrifter,' Kbhv. 1754, vi. 44.

† C. T. Engelstoft: 'Samlinger til Fyens Historie og Topografi,' Odense, 1869, i. B. pp. 1–45.

‡ 'Danske Mag.,' iii. B. p. 330.

It came into my mind in the city of Svinborge
To found a spital in honour of St. George,
To the end that poor beggars might find in this place
The bread they need daily and shelter's warm grace.
My husband and children each day that they lived
Set aside a small sum for this pious relief.
Neither wealth nor inheritance, silver nor gold,
Nothing seem'd to them too much to give to the fold.
Here behold them to-day, these fair gifts and hospice!
May God grant their protectors His help and His peace!
May He give them on earth a full share of His joy!
For the cause is most holy and good.
And if come some alloy,
If the hand of the wicked cause wanton destruction
To shrine which so holy; if evil seduction
Bring woe where was peace: then Heav'n in thine anger
Avenge the poor leper, strike down the offender,
And punish with rigour the guilty indeed,
Sending help to the Home and its inmates in need.

But if this hospital was not founded by the family of Roennow, they were at any rate its benefactors. Claus Roennow is already mentioned in the first document of Svendborg, dated 1486 (see the documents), as having taken good care of the sick when he was rector of the Lazar-house; it had then eighteen beds, but the Qvitzow family presented six more to it.

We know what the hospital was like in 1589.* It comprised twenty-six little habitations, some of them with thatched roofs and others with tiles, while others again were in a bad state of repair; the whole gave shelter to twenty-four poor people, of whom some had their wives living with them.

At that time there were only four or five healthy brothers or sisters. The Bishop tells us that there were twenty-four poor men and as many peasant farmers, and that each of them could have more than five tons of corn, half a ton of butter, lambs and pigs, besides the tithe of Egense and of Soerup paid in cattle, and the use of the fine garden, which sometimes yielded them two casks of cider a head.

That the hospice of Svendborg survived the Reformation was due to the Roennow family.

* Jac. Madsen's 'Visitatsbog,' pp. 216–17, Crone's edition, Engelstoft's quotation.

As the second document of Svendborg shows, on the 30th January, 1590, a council was held at Hvidkilde, composed of Erik Hardenberg, of Materup, and his three sisters-in-law of the Roennow family of Hvidkilde, on account of divers abuses and disorders at St. George's hospital. It was then decided that this hospice should be always maintained in the same state from generation to generation.

Aarhus.

Pontopiddan mentions* the Lazar-house at Aarhus, but the information he gives on the subject is very imperfect. Hvitfeldt tells us that after the death of the provost, the Lazar-house of Aarhus was given to a hospital in 1532. Besides this, there is reference to a title-deed granted in 1542 by King Christian III. to Knud Galten, burgomaster of Aarhus, on some Crown land, called Munkenes Lykke (monk's luck), and situated to the east of the cemetery of St. George's convent.

Huebertz† speaks of a royal order of the 5th November, 1541, by which the citizens of Aarhus, being the victims of a conflagration, are authorized to take from the church and convent of St. George the materials which they might need for rebuilding their city—

> They have the right to remove the stones and timber, as well as the other materials which are to be found in the said church.

In 1552 the Lazar-house (St. George's hospital), St. Catherine's hospital (St. Karensgaard), and the convent of the Dominicans were united, in order to form the hospital of Aarhus. The funds of the hospitals at Randers and Horsens were also united to it till 1558 and 1560, in which years these hospitals were re-integrated. Many writers are of opinion that this hospice of St. Catherine, which was officially called the Royal Hospital of St. Catherine of Aars (*alias* Aarhus), ought to be considered as a Lazar-house. But this supposition is only based on the fact that King John presented this hos-

* 'Danske Atlas,' iv. 85.

† 'Aktstykker vedkommende Staden og Stiftet Aarhus,' Kbhvn. 1845, i. p. 134, No. 7.

pital with the church at Morslet, and the right to raise in seven districts the tithe called "hospital-oats or plough-corn," and Pope Julius II. confirmed this gift by a deed in which the same hospital is called *Domus leprosorum sanctæ Katharinæ Arusiensis*.* The decrees of Christian II., Christian III., and Frederick II.† only mention it as a hospital for the poor.

Daugaard‡ declares that the Convent of our Lady of Brobierg, which, to judge by its name, must have been a Carmelite convent, also served as a refuge for lepers. In any case, St. George was the patron of this convent.

Aalborg.

King John, on his death-bed at Aalborg, in 1573, gave to the hospital of the Holy Spirit, founded in 1431, the Crown-hospital called St. George's, situated outside the west gate, with all its fees, revenues and dependencies. The widowed Queen Christina and the king elect, Christian II., confirmed this gift by letters patent.

In 1530 Frederick I. decreed that the church and convent should be taken by force from the fraternity; Axel Gioee carried out this order; the inmates were turned out, and found temporary refuge in the convent of the Grey Friars. But, in 1533, after the king's death, the convent was restored to the friars of the Holy Spirit, on condition that they should lodge, feed, and clothe the lepers.

From that time St. George's hospital became the farm of the convent, and the latter had a house built and arranged with places for the lepers outside the town. Of this hospital, all that remains is St. George's Church, now used as a mortuary chapel.

In 1534 this Lazar-house was destroyed, when Johan Rantzau beseiged the town, and, in 1536, the convent met with the same fate as all the others, being suppressed as a Lazar-house and transformed into a general hospital.§ But again, a century later, it served as a preaching-hall to the

* Pontopiddan, passage cited, iv. 85.

† Hofman's 'Fundatser,' ii. 105.

‡ Passage cited, p. 391.

§ D. H. Wulff: 'Aalborg for og nu,' Aalborg, 1883, p. 33.

students when leaving college. The sermon ended, a collection was made with a tinkling-bag, "and the rich merchants' daughters willingly gave half-a-crown, or even a whole crown, for the benefit of the young preachers whose means were not sufficient to cover their travelling expenses to Copenhagen."*

Nykoebing in Mors.

There certainly was once also, at the borders of the monastery of Ducholm, a hospital or house of St. George, with a chapel belonging to the convent, or dependent on it, which was called in a document of the year 1418 *domus leprosorum in Duholm in Morsæ*.† This document is a deed of mortgage found in the archives of Ducholm,‡ the hospital being lent to Magnus Wilde, who gave as pledge a piece of land, called "Thoock and Flade."

The Lazar-house in question was situated to the south-west of the town, near to the mill, which, on this account, was called St. George's mill. The ground occupied by this Lazar-house was still designated, in 1527, *land of St. George*, and the town having taken possession of it, divided it into two farms.

The following is taken from the summary of the most ancient Danish archives:—

In 1422, Cecilia, daughter of Erik, presented the hospital with some property.

In 1427 experts declared on oath that the land situated to the west of the old school and extending to Noden, formed part of the undivided property of St. George and St. Cecilia, and that the field of Vetell formed its boundary.§

There is a Latin inscription, written on parchment, showing that Friar Peter, Abbot of Soroe, confirms the jurisdiction and the rights of the convent at Ducholm over the hospital, the mill called St. George's, &c.‖

* Trap: 'Kongeriget Danmark,' ed. 1858, suppl. 121.

† Pontopiddan: 'Danske Atlas,' v. p. 549.

‡ 'Aeldste danske Archivregistraturer,' iii. p. 195, O. 62.

§ 'Aeldste danske Archivregistraturer," iii. p. 189, O. 62.

‖ *Ibid.*, ii. 178, M. i.

Randers.

The words *domus leprosorum* are to be found in a will of the year 1263. The hospital had a chapel consecrated to St. John the Baptist. According to tradition, the buildings were situated a little to the west of Hvidmoelle (the white mill), beyond the mill trench, at about the same spot as that on which the cemetery of the hospital now stands.

This hospital and its chapel were given by King Christian I. to the convent of Mariager; probably this presentation dates from about the year 1468, for in that year the king commended the convent in question to the protection of the Pope.

This letter of presentation was renewed at a later date, and confirmed by Christian II. in 1514, after which period we know nothing of this hospital.*

It was probably in 1558 that the Lazar-house was re-united to the hospital.

Grenaa.

In an order issued by Frederick II., under date 1562, the following passage occurs: "The hospital at Grindow, formerly under the direction of M. Jesper Brokmand, being now ruined, its funds will be given to the Aarhus hospital." This hospital at Grinnaa was called St. George's hospital, and, in the time of Christian II., Niels Torkilsoen, the King's chaplain, received in fief, for his lifetime, the Crown Hospital, called St. George of Grindow's hospital, on condition of maintaining it and its chapel in good condition, of supplying the poor patients with food and with everything else to which they could lay claim, and of ruling the peasants according to law and custom.†

Viborg.

In 1263 Dame Margrethe, of North Jutland, gave two "marcs" to the Lazar-house, called *domus leprosorum Wibergis.*‡

We know for certain that in 1440 the director of this hospital was Peder Matthiesen, priest of the church of St. Michael.

* Stadfeldt: 'Beskrivelse over Randers Koebsteg,' Kbh., 1804.

† Pontopiddan: 'Danske Atlas,' iv. 272.

‡ *Ibid.*, 630.

The historiographer of Viborg* says of this establishment :—

The Lazar-house and its chapel are situated outside St. Michael's gate, on the right, opposite the road which leads to Oesterteglgaard, round the southern extremity of the lake; the land is now called *Capelbakken* (chapel-hill) or *sygestuejord* (land of the infirmary), and belongs to the general hospital of the locality.

A hundred years later it was converted into a cemetery, where strangers were chiefly interred. Amongst others a French rope-dancer was buried here in 1607.

Ursin is wrong in supposing that the convent of St. Michael, situated at the end of St. Michael's Street, and consequently inside the town, was a Lazar-house; for, in mediæval times, as has already been remarked, no lepers were tolerated inside the towns.

Horsens.

Fabricius, the historiographer of this town, relates the following :—†

It is possible that the foundation of this Lazar-house dates from the thirteenth or fourteenth century. If, in 1492, King John permitted the church at Thorsted to continue to belong, as it formerly had done, to the Lazar-house situated outside Horsens, with all the Royal grants,‡ and if this royal donation was confirmed in 1502 and 1524, it is no doubt because cupidity sought to fix it there.

The Lazar-house, then, had been in existence for a long time, and the church at Thorsted belonged to it.

This establishment owned some land, as is seen by a letter from Christian III., dated 1540 (the document is in the municipal archives at Horsens). The words are as follows :—

The field and the meadow called Spedalsoe, which belonged to St. George's hospital, and were situated east and west of the great road, shall become the property of the town of Horsens, conformably with a deed of presentation signed by the prior and the fraternity of the convent of St. John.

After the abolition of the Lazar-houses took place, the one

* Ursin : "Stiftsstaden Viborg,' Cop., 1849, p. 27.

† Fabricius : 'Horsens Kobstads Beskrivelse og Historie,' Odense, 1879, p. 127.

‡ Hofman's 'Fundatser,' ii. 223.

at Horsens passed in 1552, apparently conjointly with the house of the Holy Spirit, to the hospital at Aarhus.

However, on the 8th May, 1560, the hospital at Horsens was re-established.

Like all the others, this Lazar-house was situated outside the town. According to ancient documents, even of the middle of the seventeenth century, the street and bridge actually called Hospitalsgade and Hospitalsbro, bore respectively the names of St. George's Street and St. George's Bridge. The name Spedalsoe (Isle of the Hospital) recalls the former owners of this plot of land, which in times of yore was actually surrounded by water. In a letter from the king to Mandrup Parsberg, dated 17th November, 1592, there is mention of a complaint against the burgomaster and the municipal council of Horsens, who had taken possession of an isle, called Speresoe, that is, Spedalsoe, to the great prejudice of the hospital.*

However, the burgomaster and the council were able to prove that they were in the right.

Kolding.

The Lazar-house and its chapel were situated to the south-west of Kolding, near the river, to the west of Provstegaard. Mention is made of it† in 1525, in an order issued by Frederick I. to Master Claus Gerdsen, provost of Ribe, to Master Anders Glob, provost of Odensee, and to Holger Rosenkrands, chevalier and commandant of Koldingshus, to make an enquiry as to the manner in which the priest of Kolding had fulfilled his duty, and to deprive him of the fief of St. George's hospital and chapel in the case of his being found guilty of any infraction of the same.

In the letter of the 25th November, 1526, which granted this fief to Jesper Brockmand, it is stated that he shall have the hospital with all its revenues and dependencies, but solely on condition that he shall have Mass celebrated and Divine Service performed, and provide the poor lepers with food and all other things of which they may stand in need.

* 'Jyske Tegnelser,' i. 330.

† T. T. Fyhn: 'Kobstaden Kolding,' Cop., 1848.

When in 1543 the Dominican convent at Ribe was transformed into a hospital, the Lazar-house at Kolding, the convent of the Friars of St. John, and the Lazar-house at Ribe, all having been united in 1523, were added to it; but in 1552 the Lazar-house at Kolding returned to the keeping of the Castle of Kolding, and, in 1558, it was restored to Kolding to form part of the hospital of that town.

Ribe.

From the year 1260 we find mention of Ribe hospital: Knud Snubbe gave a "marc" to each of the hospitals of Schleswig, Flensburg, Aabenraa, and Ribe.*

In 1291 the lepers of Ribe owned a meadow at Nyholm, near Jaernkiaer.†

In 1309 Gjoede, Rector of Hvidding, and the brethren of the hospital complained that part of the lands belonging to the hospital had been taken from them in an illegal manner.‡

By a letter of the 7th January, 1310, the Pope enjoined upon the Bishop to effect the restitution of whatever had been taken from them.

This hospital is mentioned in the testaments of 1310 and 1338, as well as in a deed of sale prior to 1319.

On the 13th May, 1523, the Lazar-house was given in fief to the Friars of St. John:§ conditionally on their keeping up the performance of Divine service and the daily celebration of mass in the church at Grav, besides receiving all the sick sent to them from the surrounding districts, the alms of which, and the tithe paid in corn, contributed to relieve the needs of the Lazar-house.

On the 12th December, 1543, the convent of the Dominicans was transformed into a general hospital, to which the Lazar-house of Kolding was joined; it was, however, in 1552, again handed over to the castle of Kolding, and six years afterwards re-united to a special hospital at Kolding.

* Langebek: 'Scripta Rer. Danic.' viii. 159 & 513.

† *Ibid.*

‡ 'Geh. Arkiv, Sup. til Ribe Stiftske,' Dok. 5, R. C. pp. 512, etc.

§ Kinch: passage cited 467.

Bornholm.

This island had its Lazar-house in the parish of Aakjaer. One finds the following in an ancient topographical description of the Bornholm parishes:—

In the parish there is a hospital called House of St. George, where there once lived a nobleman called Skjalm Gyldenstjerne, who presented this property for the purpose of a Home maintained by charity, and who also presented eighteen farms thereto.* In 1551 King Christian III. gave in fief, by letters patent,† to his courtier, Claus Gaggi, the hospital of St. George, "situated in our country of Borringholm," on the usual condition of maintaining it. In 1562 this hospital was given in fief to Mogens Uff.‡ The farm which belonged to the hospital still bears the name of Spidelgaard (farm of the hospital).§

Faroe.

Before this archipelago had a hospital, its lepers were confined in cabins, near the hedge which separates the lands belonging respectively to the town and the neighbouring communes.

The lepers' hospital was situated at Arge, to the south of Thorshavn, and was probably founded shortly after the Reformation. Its property consisted of four fields without a garden, belonging to the parish of Kirkeboe, exempt from tithe and duties; and also of five cows, one heifer, and two horses. The bailiff Andersen, whose book‖ furnishes these details, declares that there is no royal decree relating to the founding of the hospital—a fact which need not astonish us, for all the hospitals of St. George of Denmark were of ecclesiastical origin, and founded, maintained, and supported by public charity.

It is certain that before the Reformation there was in the Faroe Islands a hospital for lepers. On the 14th February, 1547, the hospital at Thorshavn was given in fief, on ordinary conditions, to a Hamburg merchant, Thomas Koppen, who,

* Suhm's 'Samlinger,' i. 38.

† 'Memoirs of the Academy of Sciences,' vii. 1754, p. 49.

‡ Pontoppidan: 'Ann. eccles. Dan.,' p. 384.

§ Trap: 'Dammk.' ed. 1858, i. 530.

‖ Andersen: 'Færoerne 1600–1709.' Copenh. 1895, p. 317.

among other obligations, had to pay 100 "marcs" in Lubeck money to the hospital and the poor of the place.

This money served to maintain the unfortunate inmates of the hospital, who had, besides, the revenue of the lands and the fines which the tribunal of the locality condemned offenders to pay to the hospital, either in flour or in money. The hospital might also receive alms, and had the right to one whale in every "*Grind*" (a school of whales, against which a general expedition is directed from the moment of its appearance in the fiords). The overseer of the lepers' food went his rounds in the company of his subordinates, and collected alms, from which he deducted his share, and also a portion for the maintenance of his assistants. The cost of the lepers' fuel and maintenance absorbed a third of the sum collected. This same personage had the right to a third of the royal gratuity. The actual director of the hospital was the bailiff: he had to control all the accounts, and do the duties of a steward. There were usually from ten to a dozen lepers in the home; from 1709 to 1710 there were fifteen sick inmates, according to the Stromoe curé's account. Small-pox* had carried off twelve, but others kept on arriving who were suffering from this terrible disease. The priest in question gives vent to bitter complaints as follows:—

I supply them with the sacramental bread and wine; I am obliged to be at their service day and night, and for all my trouble and expense I never receive the least indemnity, but only vexations, bad smells, and bad air, which I have to swallow incessantly; my predecessors were always presented with a whale, when one came this way, but, as for me, I have never had one.

The hospital seems to have been insufficient for the demand, and no attention was paid to the rules as to obligatory isolation. A decree of the 29th April, 1661, reads as follows:—

Considering that in the whole country there are a number of persons attainted with leprosy, and that the number of lepers increases incessantly, insomuch that it is to be feared

* The same epidemic swept off a third of the population of Iceland, causing the disappearance of almost all the lepers. Ehlers: 'Leprosy in Iceland.' Hospitalstidende 1893, No. 41.

that the contagion will gain ground to such an extent that we shall be unable to stop it, Our will and pleasure is that an order be given to intern the lepers in a Home, to which they must bring all their possessions, and, in the case of their means not sufficing for their maintenance, a begging-quest will be made in all the country round.

The bailiffs received orders to take a census of the lepers, and to build them a house at Arge.

C. DOCUMENTS.

I.

Archbishop Birger at Upsala, 1367–83.

The original parchment is in the State Archives of Sweden.

Ordinacio hospitalis Enicopensis.

(From Hedquist, p. 140.)

In nomine Domini nostri Jesu Christi et gloriosissimæ virginis Mariæ, matris ejus.

Ut heredes Dei, coheredes autem Christi, pauperes videlicet, qui in domo hospitalis Enicopensis recepti sunt vel in futurum recipi contigerit, qui eciam centempnentes ea, quæ in mundo sunt, Christo dedicaverant se et sua, vigiliis, jejuniis et oracionibus aliisque seruiciis et Dei laudibus liberius vacent et ardencius intendant eorumque ingressus, progressus et egressus acceptabiles Deo fiant, nos Birgerus, diuina miseracione archiepiscopus Upsalensis, ex voluntate et concessu nostri capituli infrascripta statuta sive regulam per ipsos pauperes et eorum officiales perpetuis temporibus districtius obseruanda edidimus et ordinauimus in hunc modum:

Primo, quod homines utriusque sexus morbo lepræ respersi debent per officialem domus per totam dyocesem nostram Upsalensem diligenter inquiri et inventi, si pauperes sint, gratis ad idem hospitale recipi propter Deum. Illi vero, qui bona habent mobilia, cum eisdem bonis recipiendi sunt officialis manibus pro communi utilitate ibi degencium applicandis, et possunt ad hoc de jure compelli tam intrantis quam eorum heredes, si resistunt. De immobilibus autem bonis fiat, sicut de aliis bonis ecclesiis et aliis piis locis datis seu relictis juxta leges et consuetudinis patrie consueuerat obseruari.

Item circa dictam dictorum pauperum hoc volumus obseruari, quod quilibet illorum in die habebit duos panes ordeaceos bene purgatos; in festis autem præcipuis, puta die natalis

Christi, circumcisionis, epiphaniæ, purificacionis, paschæ, ascenscionis, corporis Christi, Johannis baptistæ, assumpcionis beatæ virginis, Michaelis, omnium sanctorum et beati Nicholai dabuntur cuilibit duo panes ordeacei et unus siligineus purus, et qualibet istarum dierum dabitur eis in communi, si decem sunt personæ, dimidia lagena bonæ ceruisiæ et integra, si duodecim fuerint vel XXti. In quadragesima vero qualibet dic quilibet habebit unum panem de siligine et unum de ordeo, quilibet duo alecia et similiter in diebus ieiunalibus extra quadragesimam. In ipsa autem XL: a dabitur eis in communi dimidium centenarium thorsk et dimidium centenarium luciorum siccorum, unus modius pisarum, duo salmones fumati. Si autem extra tempus quadragesimale alecia forsan haberi non poterint, tunc dicta porcio, videlicet II. alecia, per officialem in siccis piscibus et recentibus suppleatur. Et ista prædicti pauperes tenentur habere, si octo fuerint; si vero numerus personarum excreuerit vel infirmitas aliquorum hoc exegerit, porciones huiusmodi per officialem, prout opus fuerit, augmententur, super quibus suam conscienciam oneramus. Item in qualibet septimana extra quadragesimam quælibet persona unam marcham butyri habebit. Item in communi in qualibet septimana dimidium talentum lardi et de carnibus bovinis fumatis unum talentum cum dimidio, si X. sunt personæ; si vero plures, fiat augmentacio istorum per officialem secundum exigenciam et numerum personarum.

Porciones autem isti septimanatim debent eis dari, eciam si vigilia alicuius sancti vel alia ieiunia ecclesiastica contigerit evenire. Item in estate qualibet feria quarta, si non sit ieiunium, dabitur in communi una urna lactis coagulati et in die sabbati una urna lactis dulcis. Item per quamlibet hebdomadum habebunt unam lagenam ceruisiæ, si sunt octo et plures quam IV-or; si autem IV-or tantum dimidia lagena; si vero plures quam X: cim et pauciores quam XVI-cim, una cum dimidia; duo vere integræ lagenæ, si XVI-cim fuerint vel XXti. Et ista ceruisia non debet esse noua sed septem dierum, et lagena debet esse plena si autem ceruisia noua fuerit, addi debent per officialem ad lagenam quamlibet duæ caldariæ pro supplemento. Item si octo sunt personæ, habebunt circa festum beati Martini in quolibet anno duos tynnones annone pro lentibus et duo talenta adipis pro candelis. Item in quolibet anno circa festum beati Michaelis octo personæ habebunt tria pund salis et circa festum paschæ duo pund et circa festum vero beati Johannis baptistæ unum pund.

Item circa festum beati Martini quolibet anno quælibet persona habebit octo ulnas marknist de officiale. Item circa festum natalem Domini annuatim quilibet unum par calceorum, et unum par quilibet in festo beati Johannis baptistæ.

Item in festo omnium sanctorum dabit officialis famulo domus dimidiam marcham denariorum et ante festum pasche annuatim eidim similiter pro suo seruicio.

Item volumus et declaramus, quod utensilia necessaria pro ipsis pauperibus debeat eis per officialem assignari, videlicet una caldaria de quinque urnis, item una caldaria de una olla de una urna, unus cadus et duæ urnæ, nisi augmentacionem præmissorum numerus vel utilitas exegerit personarum. Prædicta autem utensilia cum inueterata vel fracta fuerint, officialis faciat reparari.

Erga divinum insuper officium in dicto hospitali tam per officialem quam ipsos pauperes obseruandum statuimus, quod idem officialis qualibet die dominica et omnibus festiuis diebus secundum morem patriæ ac omnibus sextis feriis in ipsa capella hospitalis missas faciat celebrari; necnon in infrascriptis festis, videlicet prima die natalis Domini, purificacionis beatæ virginis, annunciacionis ipsius, cenæ Domini et parascenæ, pasche, ascensionis Domini, penthecostes, corporis Christi, beati Johannis baptistæ, assumpcionis et natiuitatis eiusdem beati Michaelis, omnium sanctorum et in die animarum, necnon concepcionis beatæ virginis et beati Nicholai matutinas et utrasque vesperas sollempniter decantet vel per alios faciat decantari. In præmissis ipsius officialis conscienciam onerantes prædictis autem missis matutinis et vespertinis interesse prædicti pauperes intra ipsorum oratorium, nisi graui infirmitate vel aliis iustis causis fuerint impediti. De lectura eorundem pauperum taliter duximus ordinandum, quod, si sit aliquis clericus infra sacros, ultra horas canonicas teneatur qualibet septimana legere ter VII-tem psalmos et bis vigilias, si vero laycus litteratus, legat qualibet die horas beatæ virginis, si eas scit, et ter in septimana VII tem psalmos et bis vigilias pro defunctis, si vero purus laycus vir siue mulier, legat qualibet die in mane X pater noster et totidem aue maria et totidem hora vesperarum. In festis autem sollempnibus quilibet teneatur legere pro matutinis XXX-ta pater noster et totidem aue maria, pro missa totidem, pro singulis vesperis eciam totidem, pro aliis vero horis, videlicet prima, secunda, tercia, secta, nona et completoria, pro ipsarum qualibet XII pater noster et VII aue maria. Prædictam autem lecturam faciant in oratorio tam in vespere quam in mane. Item qualibet die per totum annum, exceptis tribus diebus proximus ante pascha, faciant ter pulsari campanam, et quilibet flexis genibus legat ter aue maria, ipsam beatam virginem humiliter salutando, ut indulgenciarum super hoc concessarum participes effici mereantur. Item quod quilibet tempore parasceue, antequam cibum capiat, dicat unum pater noster et unum aue maria et post prandium idem.

De ieiunis vero per præfatos infirmos seruandis ita duximus ordinandum, quod omnes et singula, qui annos discrecionis attingunt, nisi adeo graui infirmitate laborante, quod sine periculo vite ieiunare non possunt, ad conuiuia ieiunia juxta statuta ecclesiæ et consuetudinem patriæ sunt astricti indulgentes eisdem, quod, qui voluerint in XL-a propter carentiam piscium recencium et aliarum rerum comestibilium possint uti lacticiniis alternatis diebus usque ad mediam quadragesimam, deinde vero usque ad diem paschæ debent a talibus abstinere, quod eorum conscienciis relinquimus iudicandum.

Item statuimus, quod nullus, quantumcumque potens seu cujuscumque condicionis aut status existat, posquam semel in hospitali se Deo dedicauerat, septa hospitalis ad ecclesias, conuiuia seu quascumque alias inuitaciones exire audeat, prout porciones sibi debitas per septimanam sequentem amittere noluerit et grauiores penas, si contumacia hoc exegerit voluerit euitare, ne ex ipsorum conuersacionibus et contactibus infici valeat populus christianus. Sed pro elemosinis petendis ponantur scutelle circa oratorium vel alibi in cimiterio ipsorum, quando in dicto loco fiunt staciones, et aliis temporibus, ut a transeuntibus vel loca eorum visitantibus elemosinas recipiant largiores.

Item personæ utriusque sexus in dicto hospitali degentes, quæ sunt ita potentes, et laborare possint, inuare et cooperari manibus propriis debent in æstate et autumpno fenum et blada deplaustris in horream inferendo.

Circa legata autem ipsi hospitali et personis ibidem relicta seu relinquenda hoc volumus obseruari, quod, si fiant hospitali in prompta pecunia, auro vel argento, cedant pro ornatu vel structura capellæ, si vero hujusmodi legata, in quibuscumque rebus consistant, certis personis in hospitali relinquentur, eisdem personis, quibus relicta fuerint, cedant absque diminucione quacumque. Si autem legantur victualia, videlicet pecora, sues et oues, siligo, triticum vel annona seu alia, quæ usibus pauperum pro victu vel vestitu sunt necessaria, talia inter se aliqualiter diuidant et disponant. In casu vero, quo legantur equi, boues domiti aut alia animalia pro laboribus apta, secundum ordinacionem ipsius officialis cedant pro usibus hospitalis. Sed si lectisternia, officialis ea ad usus hospitalis recipiat pauperibus ibidem, que necesse habuerint, eroganda.

Et notandum est, quod hoc statutum coream communitate loci prædicti semel in anno, videlicet in crastino beati Martini, officialis legi faciet sine fraude. Qui quidem officialis siue præuisor domus compotum et raciocinium de amministracione redditum eiusdem domus per ipsum facta coram nobis seu successoribus nostris et capitulo, ubi et quando visum fuerit, reddere seu facere tenebitur annuatim.

II.

The First Svendborg Document (1486).

A document is in our possession in which the earliest information may be found on the importance and the working of the Lazar-house at Svendborg. Karen Brahe's library possesses a copy of it, made in the seventeenth century, but it is not very correct, and is dated erroneously 1453. (See the catalogue of *Vogelsang*, page 78, No. 159.) To judge from the name of the bishop, it must have been edited subsequently to 1474, and the illegible word therein to be seen must probably read : MCDLXXX sexto :—

Bishop Charles Roennow and the king's lieutenant in the fief of Nyborg met at the town-hall in Svendborg, together with the burgomaster and the delegates of the city, to regulate, in a kindly and religious spirit, the difficulties affecting, on the one hand, those whom the king has charged with the management of the hospital of St. George, of its revenues and of its servants of all grades, and, on the other hand, the brethren and sisters who are inmates there, or who may be legally admitted there.

We, Charles, by the grace of God Bishop of Odensee, Gregory Marsouin, lieutenant to our beloved and generous lord and king, commanding the castle of Nyborg, Hans Andersen, Burgomaster of Svendborg, Niels Mogensen, Hendrich Jansen, Peder Ebssen, Roeyter Persen, Olluf Andersen, Madz . . ., and Master Maarten, members of the Council and citizens of Svendborg, hereby make known that, by order of our beloved and generous lord, we have assembled in the Town-hall of Svendborg on the Friday following St. Ambrose's day, in the year of our Lord 1486, in order to establish and ensure a good and Christian understanding between, on the one part, the persons who are or who will be charged by our dear and generous lord and king with the management of the Lazar-house situated outside Svendborg, of its lands and of the direction of its servants, and, on the other part, between the brethren and sisters who are inmates there or who shall be legally admitted there; acting thus by order of our dear and generous lord and king, and reckoning on his approbation, we have established and decreed the following :—

1st : As regards the farm belonging to the hospital, and called the farm of the above-mentioned Lazar-house. Whoever occupies it, and takes the profits, shall give annually six measures of barley to defray the expenses of the fraternity,

and shall pay a tithe to the church and to the priest, according to ancient custom, the said farm having always given six measures of barley for the needs of the brotherhood, with the exception of Jees Persen who now occupies it. However, Master Claus Roenou having been substituted for Jees Persen, by the pleasure and with the consent of the whole fraternity, has given them full satisfaction every year, and has made proof to them of his good will, as they have spontaneously made known to us and have declared the same in our presence.

2nd : The tithe and rent paid annually by the peasants and servants of the said St. George's hospital in corn, butter, money, sheep, geese, and fowls, and the foreign tithe and all other sources of income, shall be divided equally among the sick brothers and sisters and the eight healthy brothers and sisters, these latter being charged with the care and the maintenance of the sick.

3rd : The chaplain shall have annually five marcs in money for three masses to be said for them in the church every week; further, being priest to the confraternity and administering the sacraments to them, he shall have, if he desire it, a brother's share; he shall pay them his introit (or welcome) like every other newly admitted brother, according to the custom established by his predecessors.

4th : If any of the eight healthy brothers, whose office it is to walk and ride about to receive the alms of God for the benefit of the community, is married and loses his wife, he must never marry again, nor lead an irregular life, but will be expected to remain chaste, as beseems a monk. The sick may not marry again if their consort dies, unless someone consents to share their fate.

5th : The squire (valet monté) of the sick must be elected by all the fraternity ; he shall have a double share as brother, and, in return, he must supply the tenantry with food and beer, and lodge them when they come to pay their rent, and also watch over the division of the tithe and the rents, as has been already said.

6th : The hospitality which is expected of the tenantry will be reserved for him to whom our generous lord has entrusted the direction of the hospital, but this person must not make a wrong use of it. Every tenant in the service of the convent, having a competency and a good farm, must henceforth keep two horses at the rector's service twice a year, and those who are less wealthy must furnish him with two horses once a year, which will not however prevent the begging friars of the convent from claiming lodging, beer, and the necessary forage for their horses when on their rounds taken for the purpose of collecting "God's alms."

7th: The tenants in the service of the convent may be exempted from work by paying a sum of money for this purpose; those who do not thus exempt themselves from doing regular service must hold themselves at the disposal of the rector one day during rye-harvest, two days during barley-harvest, must lend him a carriage when he goes to the meetings of the court of justice or elsewhere as a mandatory and in the service of the convent. The workmen and tenants in the service of the said St. George's hospital cannot be discharged from the farms they occupy, except for legitimate reasons. No expulsion can be effected without the authority of the "squire" and the churchwarden, nor can it take place without their intervention. When there is question of a gift on taking possession of a house or a farm by exchange, the two persons concerned shall decide what present shall be given to the man who has been appointed rector by our dear and gracious lord and king.

8th: Three locks must be made to every alms-box in the church, and for every strong-box containing their papers and documents, which latter must not be taken out of the church. The rector will have the key of the first lock, the chaplain that of the second, the squire and the churchwarden that of the third. The holders of the two first keys cannot prevent those of the third from opening the boxes when the latter see any necessity for so doing.

9th: The contents of the two alms-boxes, the pious legacies, the collections made by the quests, and the pound of wheat supplied to the church by the farm of "Bryde," must be devoted to the expenses of the church and for its decoration; any surplus of the money given for this object will be used by the squire and the churchwarden for the sick and needy, and they must render an annual account to the provost of the church of the manner in which they have distributed it.

10th: The squire and the churchwarden must provide themselves with the horses which they need for going round to receive the God's alms given by good people, and will be expected to supply themselves with forage for their horses.

11th: If anyone is afflicted with the *udsettische siuge* (malady of a nature to necessitate his being kept from others), rendering him unfit to remain among the healthy people of the district in which the convent has the right to collect the God's alms, the convent must claim him and obtain his admission to the hospital without any cost on his part. However, if the sick person have any fortune, he must pay his "introit" to the hospital, in proportion to his means and according to custom.

12th: There shall only be eight healthy brothers at the

hospital; they must superintend the maintenance of the patients and collect the God's alms; they shall be treated on an equality with the patients, and will be maintained like them, according to the rules mentioned above. On the death of a brother, either healthy or sick, all his possessions shall become the property of the convent, his goods shall be used for the needs of the fraternity, his inheritance must not leave the convent. If a brother commit an illegal action, the fine which he is condemned to pay shall be given to the brotherhood for their common use. If a brother be condemned to capital punishment, he shall be executed by the bailiwick of the Sound (*Sundtz Herridt*); his property, and the fines which he was by law condemned to pay, shall be devoted to the needs of the confraternity.

13th: The rector-administrator, nominated by our dear and gracious lord and king, may not fell wood belonging to the convent, or allow it to be felled, in a prejudicial way, nor damage the woods. No tree may be felled without the special authorisation of the squire and the churchwarden.

14th: All the brothers without exception, sick or healthy, being members of a monastic order, must say fifteen *paters* and fifteen *aves* every morning before the eight o'clock service; also every morning at a later hour, before noon, fifteen *paters* and fifteen *aves*; and also every evening at the service fifteen *paters* and fifteen *aves*; at this latter service they must also pray for the founders of the hospital, for its patrons, its benefactors, and for all Christian souls.

After drawing up and reading over all the above articles, it has been acknowledged, on the first part, by Erik Christensen, nominated rector and administrator of the hospital funds by our dear and gracious lord and king, and, on the second part, by Michel Pouelszen, by Reimert Madsen, and by several brothers delegated by the confraternity with full power to act in this matter and this place. All these persons have formally accepted and have thoroughly approved of the above articles and depositions in every particular, and have declared themselves entirely satisfied with them.

In order to attest openly that both parties have declared themselves entirely satisfied with the depositions agreed upon, as has just been stated, we have placed our seals to the end of the present deed.

Datum anno et loco supradictis.

III.

The Decree of King John relative to the litigation existing between the rector of Naestved and the Lepers (1492).*

We, John, by the Grace of God, King of Denmark, of Norway, of the Wends and the Goths, King elect of Sweden, &c., make known unto all men that during our stay at Naestved the following have appeared before us: Jean Boesen, present Rector of the Convent of St. George of the said city, and the brothers domiciled in the convent; that the brothers have complained of the ill-usage to which they are subjected by the fact that the said Jean Boesen gives them not a quarter of the allowances to which they have a right; and that they have also informed Us of other difficulties and subjects of variance existing between them and their rector. After having heard the parties and consulted Our beloved Council of the Kingdom of Denmark, we have drawn up the following contracts and regulations.

In the first place, the Rector, and after him his successors, shall employ women to nurse the sick, who shall watch over them and take charge of their food, clothing, and washing, and hold themselves entirely at their service. The rector shall supply them with lodging, fuel, clothing, bedding, and everything else necessary to their welfare. He shall provide for their maintenance, and shall cause to be dealt out to them on feast days: beer and aliments consisting of lard, beef, cabbages, a dish of some produce of the season, or, failing that, some other dish: he shall cause to be given them in the morning boiled beef, herrings according to pleasure, or some other dish of fish, and beer at discretion. He shall provide for the maintenance of a chaplain, whose duty it will be to say mass every Sunday, Wednesday, and Friday. He shall make all necessary constructions and repairs to the church and hospital. He shall treat the tenants in the service of the convent conformably with the law and the regulations. He shall not permit any prejudicial felling of timber belonging to the convent, and shall endeavour by all the means in his power to ameliorate the state of the church and to embellish it. In the second place he shall pay to each of the healthy brothers of the convent two "sous groot" annually, and give them for their mutual use an ox recently killed, and a quarter of butter.

Further, from this day forward no new healthy brother shall be admitted to the convent, but all the sick brothers,

* Hofman's 'Fundatser,' x., p. 189, Cop. 1765.

who come from the district paying tribute to the convent, must be received into it. These sick persons must be *formally received* there and installed as patients, conformably with the regulations. Any surplus from the revenues of the convent shall become the property of the rector, who can use it to procure whatever he needs for himself.

Our burgomaster and one member of Our council of Naestved shall be delegated once a month to the said convent conjointly with Our burgomaster himself and by Our council of Naestved, or by those who succeed them, to satisfy themselves that the established regulations have been strictly carried out; in the case of any infraction of the same they are to inform the rector or refer to Us.

Dat. in Monasterio Andwordschou ipso die conceptionis Mariæ An. Dn. MCDXC Secundo, nostro Regali Sub secreto.

IV.

Copenhagen: 24th November, 1508.

We, John, by the Grace of God, King of Denmark, of Sweden, of Norway, of the Wends and Goths; Duke of Schleswig, of Holstein, of Stormarn, and of Ditmarsk; Count of Oldenburg and of Delmenhorst: make known unto all men that the patients of St. George's hospital situated outside the city of Copenhagen have presented themselves before Us and have complained of the violation of their rights, and of not receiving the allowances that are due to them, to which they have been accustomed since the foundation of the convent, and which they ought to receive in full, for life, in the said hospital.

As a special mark of Our good-will and generosity, and in order that the said poor and sick patients may the better praise and serve God Almighty, we have drawn up the following arrangement between them and the rector of the hospital, according to which the latter may and must have the possession and enjoyment of the farm belonging to the hospital, comprising the dwelling-house, the crops, the voluntary revenues, and the rents paid by the peasants, on condition of his having masses said daily, of celebrating Divine Service according to custom, and of making all desirable repairs and embellishments to the farm.

Item: The offerings placed in the alms-boxes of St. George's, or given at the collections made in the church, shall belong to the sick, and the alms from the villages and other places shall be distributed to all the inmates of the hospital, in such a manner that the sick receive more than the healthy inmates.

Of the armour, swords, or other objects given as offerings

to the church, one half shall be devoted to the sick, and the other half shall be and shall remain the property of the church for repairs and other necessaries. The offerings placed in the church-box shall be exclusively devoted to the needs and repairs of the church.

Item: The pious legacies bequeathed for the needs and restoration of the church shall belong to it entirely, and the legacies left to the poor for their needs shall be reserved for them entirely, and shall belong to them wholly.

The alms-box of St. George's shall have two locks; the rector shall have the key of one of these locks, and the key of the other shall be confided to a delegate of the sick inmates, and the rector shall see that the legacies and donations given to the sick are divided and distributed honestly and with discernment, so that the sick obtain the share belonging to them by right.

On consideration of this We address to Our Lieutenant of Copenhagen, as well as to Our two Burgomasters of the city, the invitation and order to visit the hospital twice a year, and to see that the above articles and dispositions shall be observed in every particular and maintained inviolably.

Given at Our Castle of Copenhagen on the Eve of St. Catherine, in the year MD eight, under Our seal.

V.

Copenhagen: 8th December, 1577.

[Document published in Suhm's collection, II. i. 160–62.]

We, Christian, etc., make known unto all men that to the praise and honour of God Almighty, and the Virgin Mary, We have recently consented that the chapel and hospital of Our Crown situated near Copenhagen be re-attached to the Convent of Our Lady of the Carmelites of Elseneur and become dependencies to it, on condition that this convent erect a college on the ground belonging to it, situated in the interior of Copenhagen, in St. Peter's Street. The act of taking possession of this hospital shall not take place till the death of the doctor, Peder Albrichtssen. We reserve the right to make a regulation relative to Divine Service, and We now decree under what conditions the services shall always be celebrated in the said chapel of St. George. Upon the death of Dr. Peder, who received the said hospital in fief for the term of his natural life, We will that Divine Service be better and more often celebrated for the greater praise, honour, and glory of Almighty God, the Virgin Mary, and the Chevalier St. George, and in order to obtain honour and prosperity for Ourself and the

kingdom of Denmark, and that the brothers, present and future, of the said convents of Our Lady throughout the whole of Denmark may pray better and oftener to Almighty God and the Virgin Mary for Us, Our ancestors, and Our successors, the kings of Denmark.

Consequently we have decreed for the said chapel and the said hospital the regulation of which We will that no infringement be ever made.

1st. We will that every day three masses be said there. On Sundays mass shall be celebrated and sung in honour of the Holy Trinity; on Mondays it shall be said for the repose of all Christian souls; on Tuesdays in honour of St. George; on Wednesdays in honour of the Holy Spirit; on Thursdays in honour of the Holy Sacrament; on Fridays in honour of the Passion of Our Lord; on Saturdays in honour of Our Lady. It shall always be thus, except when a special festival falls during the week. On high festivals there shall always be a sung mass, a sermon and four processions with masses and vigils; prayers shall also be said for Us, Our ancestors, Our successors the kings of Denmark, and for all Christian souls.

2nd. We will also that twenty poor sick be always maintained in the said hospital and be provided with clothing, food, bedding, light, and fuel.

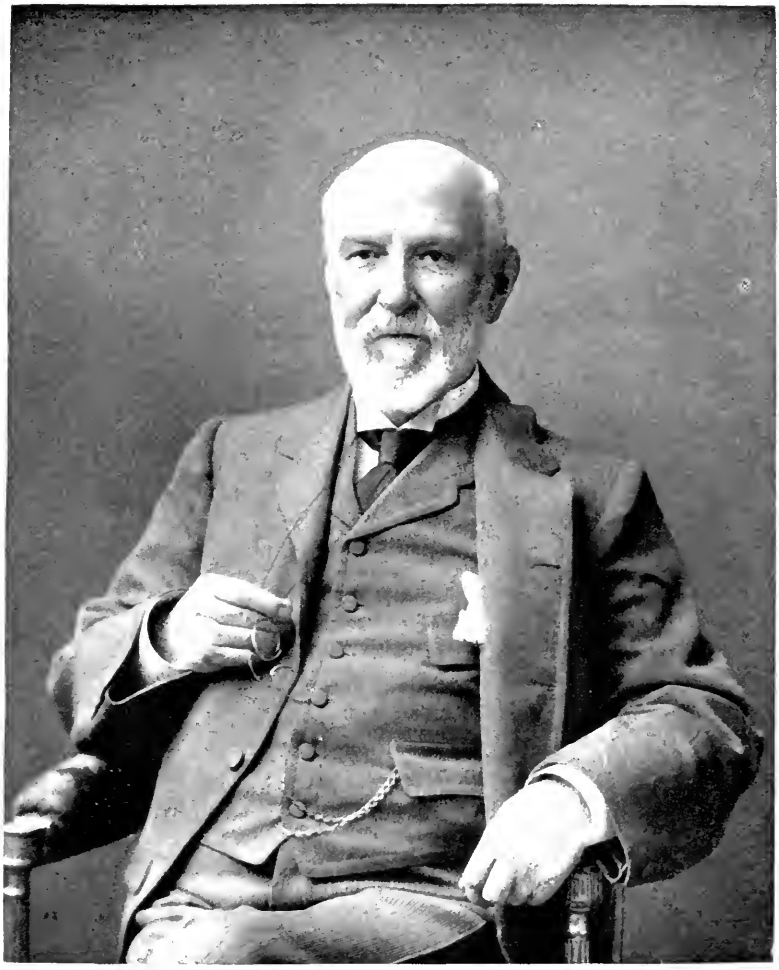
It will be the duty of the Carmelites to have Divine Service celebrated and to take charge of the poor sick inmates, according to the established prescriptions, from the moment of their taking possession of the hospital.

3rd. They must provide for the maintenance of a doctor or bachelor of theology, who shall give one lesson in theology every day at the University, and must commence his lessons in two years from this day and continue them regularly from that time forward.

4th. They must repair and embellish the said hospital and chapel of St. George, maintain in good condition and render flourishing the lands belonging to them, neither selling nor parting with anything belonging to the farms or other property without having previously obtained either Our permission or that of Our successors on the throne of Denmark.

5th. They must not on any account buy or hire any real estate in town or country, their actual lands being sufficient for them.

Given at Our Castle of Copenhagen, on the Day of the Conception of Our Lady, in the year one thousand five hundred and seventeen, under Our signature.



Yours Sincerely,

Wm. Ledyard Sanders

W. SEDGWICK SAUNDERS, M.D.

In Memoriam.

The New Sydenham Society had its origin in 1858. Its predecessor, the Sydenham Society—of which Sir John Forbes was at the time President, and Sir Risdon Bennett (then Dr. Bennett), the Secretary—had, after a career of fourteen years and much excellent work, decided to conclude its labours. At a general meeting of the members called to consider its position, a small minority were in favour of continuance, and a suggestion was made by the President that those who were zealous to go on had better form a new Society on their own lines. Of this minority Dr. Sedgwick Saunders was one of the foremost. Steps were immediately taken, and with the active co-operation of the late Dr. Peacock, Dr. C. J. B. Williams, Mr. Hilton, and others, in a few months a long list of new members was secured. Dr. Williams became the first President, and Dr. G. Hilaro Barlow took office as the first Treasurer.

Although there was no bond of connection between the two Societies, many of those who joined the New had been members of the Old, and, a year or two later, in proof of cordial approval of what had been done, a sum of money which had remained in hand on winding up the affairs of its predecessor was presented to the New. Dr. Barlow's death a few years later left the Treasurership vacant, and the Council, having had proof of the zealous interest taken in

the Society's affairs by Dr. Sedgwick Saunders, persuaded him to undertake that office. It was one demanding much personal attention, and this was most ungrudgingly given. The new Treasurer was a regular attender at the meetings of the Council, and to his aid and advice much of the Society's prosperity has been due. In that prosperity he took great pride. He held the office from the date of his appointment till the time of his death, a period of more than thirty years, and although latterly ill-health and advancing age had frequently deprived the Council of his presence at their meetings, his attention to the special duties of the Treasurership never flagged. The Council, in passing a vote of condolence with his widow and family, expressed at the same time a desire to preserve for themselves and the members generally a memento of one to whom the Society owed so much, and directed that his portrait should be given in the forthcoming volume.

The obituary notice appended is taken from the 'Lancet' (Jan. 26th, 1901), and well records the principal facts as regards our late Treasurer's professional life:—

William Sedgwick Saunders, who passed away on Jan. 18th, was for many years a prominent figure in the City of London. Born in 1824 at Compton Giffard, Devonshire, he was educated at King's College, London, and afterwards at St. Thomas's Hospital, a hospital over which the Corporation of the City of London exercises jurisdiction. After qualifying as M.R.C.S. in 1846, he entered the army as an assistant surgeon, and served with the Royal Fusiliers in the West Indies and in North America. Returning to England he served as medical officer to the military prison at Fort Clarence, Rochester, and in 1852 sailed for service in the Kaffir War in the 'Birkenhead.' On the way out he was taken seriously ill, and had to be landed at the first port of call, a circumstance to which he probably owed his life, for, as will be remembered, the 'Birkenhead' caught fire and sank in Simon's Bay with every soul on board of her. On his recovery, Dr. Saunders resigned his commission and commenced a private practice in the

City. He was soon elected a member of the Court of Common Council, and was Chairman of the Library Committee, in which capacity he laid the foundation-stone of the Guildhall Library and Museum in 1870. On the retirement of Dr. Letheby, Dr. Saunders was chosen as medical officer of health and public analyst. In both of these capacities he did excellent work, and it is in great part due to the labours of himself and his staff that the City occupies to-day the high position which it does in regard to sanitation. He wrote much on cholera, both on the epidemic of 1866, during which he was medical officer of the City of London Union, and also upon the slight outbreak which occurred in 1893. Other important reports were those on the insanitary condition of St. Bartholomew's Hospital, issued in 1891, and on the insanitary state of Christ's Hospital, issued in 1893, in connection with an outbreak of scarlet fever. He laboured incessantly to bring about an improvement in the water-supply of the City, and was also much interested in the erection of artisans' dwellings. Apart from his professional career he was a true citizen, being a member of the Broderers' Company, and serving the office of Master upon two occasions. He was also a senior member of the Commission of Lieutenancy. A faithful and hard-working servant of the great City which he loved, his death leaves a blank which will be very hard to fill.

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THE

FORTY-THIRD ANNUAL REPORT

OF THE

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HELD AT CHELTENHAM, Aug. 2nd, 1901.

WITH

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Those marked with an asterisk were not in office last year.

REPORT

PRESENTED TO THE FORTY-THIRD ANNUAL MEETING OF THE NEW SYDENHAM SOCIETY, HELD AT CHELTENHAM, AUGUST, 1901.

In presenting the Forty-third Annual Report the Council has to acknowledge that the position of the Society during the past year has been somewhat critical. Owing to the considerable falling off in the members' list, consequent probably on the termination of the Lexicon, it appeared to the Council needful to consider carefully whether under the altered conditions of supply of Medical Literature it was desirable any longer to continue its work. Circulars were addressed to the Society's Local Secretaries asking their opinion on this matter, and a proposal was at the same time submitted to them that the Society should during the next five years restrict its operations almost wholly to the production of an Atlas of Clinical Illustrations of Disease. The conclusion which the Council came to as the result of this enquiry and of much deliberation was to undertake such an Atlas. It will be uniform with the Pathological Atlas already in part produced, and will differ from it only in that, in addition to Pathology, all subjects capable of illustration in reference to the features of disease, whether medical or surgical, will be included.

It is hoped that four fasciculi of this Atlas may be afforded each year, and, if funds permit, a volume to consist of Selected Monographs, chiefly from foreign sources, will be included. During the next five years, however, the Society is pledged to consider that the production of four fasciculi of the

Atlas a year has first claim on the funds at its disposal. If the members' list can be largely augmented, then the issue of other volumes may be afforded. It is hoped that all members will work zealously to this end.

Having regard to the state of the Society's finances, the Council has felt itself compelled to restrict the number of volumes issued for 1900 to two :—

Monti's Fundamental Data of Modern Pathology is already published, and a volume of Selected Essays is nearly ready. This volume will contain the following :—

Papers on Gynecological Subjects, by Dr. Braxton Hicks. With Portrait and Memoir.

Dr. Hodgkin's Original Paper on Disease of the Lymphatic Glands and Spleen. With Portrait and Memoir.

Mr. George Bodington's Essay on the Treatment and Cure of Pulmonary Consumption.

Sir James Paget's Original Papers on Osteitis Deformans, and on Disease of the Nipple. With Portrait and Plates.

Sir George M. Humphry's Paper on Unilateral Hypertrophy of the Gums, &c. With Portrait.

Dr. Ehler's (Copenhagen) Essay on Danish Lazar-Houses in the Middle Ages. With Illustrations.

A Portrait of the Society's late President, Dr. Sedgwick Saunders, with brief Memoir.

This is the smallest annual issue which the Society has ever made, but the restriction was rendered imperative in order to allow the Treasurer to carry forward a suitable balance with which to begin this year's work.

Professor von Limbech's Treatise on the Clinical Pathology of the Blood is almost ready, and will be issued as the first volume for the current year. It will be quickly followed by two fasciculi of the Clinical Atlas.

The Society's accounts were as usual audited at the end of 1900, when a good balance remained in the hands of the Treasurer.

The Council cannot conclude their report without an expression of their sense of the great services which were rendered to the Society by its late Treasurer, Dr. Sedgwick Saunders, who died in the beginning of the present year. He had performed the duties of Treasurer for more than twenty years, and was one of the founders of the Society, in the prosperity of which he always took the greatest interest. He was still in office at the time of his death. The Council has had the good fortune to secure the services of Mr. Henry Power as his successor.

THE NEW SYDENHAM SOCIETY.—BALANCE SHEET FOR 1900.

Dr. **Cr.**

Receipts.	£ s. d.	£ s. d.
Subscriptions— 4 for 1883 to 1895	4 4 0	
.. 10 ,, 1896	10 10 0	
.. 51 ,, 1897	53 11 0	
.. 90 ,, 1898	94 10 0	
.. 319 ,, 1899	334 19 0	
.. 851 ,, 1900	893 11 0	
.. 9 ,, 1901	9 9 0	
Say 1334 Subscriptions.....	1400 14 0	
Back Volumes	234 6 8	
Repayment of postage, &c., charged in Agent s Disbursement Account	38 14 11	
	1673 15 7	
Less deductions by Local Secretaries	14 3 4	
		1659 12 3
		£1659 12 3

Expenditure.	£ s. d.	£ s. d.
Balance from 1899		51 11 9
Artists, Editors and Translators; Printers, Paper, and Bookbinders		677 1 10
Expenses of Management:—	£ s. d.	
Agent's Salary and Commission.....	114 13 7	
Disbursements (chiefly carriage of books)	54 14 11	
Advertisements	67 4 6	
Fire Insurance (Sun Office).....	20 12 6	
Treasurer's (Dr. S. Saunders) Expenses	2 15 0	
		260 0 6
		988 14 1
To Balance		670 18 2
		£1659 12 3

Examined, compared with the vouchers and found correct, the balance of the Account in favour of the Society on 31st December, 1900, being £670 18*s.* 2*d.*, at an Audit held this 12th July, 1901.

EDWARD CLAPTON
A. ERNEST SANSOM } *Auditors.*
WAREN TAY

LONDON, *July, 1901.*

CLASSIFIED LIST

OF THE

SOCIETY'S PUBLICATIONS.

Medicine.

THE FUNDAMENTAL DATA OF MODERN PATHOLOGY. History, Criticisms, Comparisons, Applications. By Dr. Achille Monti, Professor of Pathological Anatomy, University of Pavia. Translated from the Italian by J. J. Eyre, M.R.C.P., L.R.C.S.I., D.P.H. Camb.

"The book is one which will be read with pleasure and profit by everyone interested in pathology, and it constitutes a brilliant addition to the critical literature of the science."—*Lancet*, April 27, 1901.

SELECTED ESSAYS AND MONOGRAPHS FROM FOREIGN SOURCES. Containing:—

A Contribution to the Ætiology of Tertiary Syphilis. By Dr. Thomas V. Marschalko.
Fresh Statistics of 1501 Cases of Tertiary Syphilis. By Dr. Ehlers.
On the Etiology of Tabes (Locomotor Ataxia). By Wilhelm Erb.
The Treatment of Tabes. By Wilhelm Erb.
Contribution to the Study of Visceral Affections in the Early Stages of Syphilis. I. *Icterus Syphiliticus Precox*. By Dr. O. Lasch.
Syphilis and General Paralysis in Iceland. By Dr. Edward Ehlers.
Recurring Syphilitic Roseolas. By Professor Alfred Fournier.
On Pemphigus Malignus, with Clinical Demonstration. By Dr. A. Neisser.
A Contribution to the Study of Dermatoses produced by Drugs. By Dr. Jadassohn.
Melanosis and Keratosis Arsenicalis. By Dr. Ludw. Nielsen.
Epithelioma as a Sequel of Psoriasis and the probability of its Arsenica Origin. By Dr. M. B. Hartzell.
Lichen Scrofulosorum in a Negro. By T. Caspar Gilchrist, M.R.C.S.
The nature of Lupus Erythematosus. By Dr. C. P. M. Boeck.
Multiple Benign Sarkoid of the Skin. By Professor C. Boeck.

A TREATISE ON CHOLELITHIASIS. By Dr. B. Naunyn. Translated by Archibald E. Garrod, M.A., M.D.

"This volume is a worthy companion to its illustrious predecessors."—*New York Medical Journal.*

"This is one of those masterly books in which German literature is rich. It is well worthy of the choice of the New Sydenham Society, and it has received justice at the hands of the translator."—*Practitioner.*

"The New Sydenham Society have been happy in the selection of Professor Naunyn's work for translation, as it undoubtedly contains in small compass one of the best studies of Cholelithiasis available."—*British Medical Journal.*

LECTURES ON PHARMACOLOGY. By Dr. C. Binz. Vol. I. Translated from the second German edition by Arthur C. Latham, M.A., M.B., Oxon. Vol. II. Translated by Peter W. Latham, M.A., M.D.

"Will be welcomed by English readers."—*Lancet,*

"We are very glad indeed that the New Sydenham Society has published Dr. Binz's well-known 'Lectures on Pharmacology,' and we may at once say we have rarely read a more interesting book."—*Practitioner.*

A CONTRIBUTION TO THE STUDY OF SYRINGOMYELIA. By Dr. Isaac Bruhl. Translated, with notes and additions, by James Galloway, M.D., and Lindley Scott, M.D.

"This monograph is well known as comprising one of the most detailed and accurate accounts of a condition of which symptomatology is especially marked by sensory and trophic disturbances, and at the same time so well defined as to admit of clinical diagnosis."—*Lancet.*

PALUDISM. By Dr. A. Laveran. Translated by J. W. Martin, M.D., F.R.C.P.E.

"We think the members of the medical profession in the United Kingdom and English-speaking countries generally are under a debt of gratitude to the New Sydenham Society for bringing under their notice one of the freshest and ablest monographs of recent years."—*Dublin Medical Journal.*

"The New Sydenham Society has done well in issuing a translation of the monograph by Dr. Laveran, in which the whole subject is treated with remarkable lucidity and scientific precision."—*Lancet.*

A COLLECTION OF THE PUBLISHED WRITINGS OF SIR WILLIAM WITHEY GULL, Bart., M.D., F.R.S., Physician to Guy's Hospital. Vol. I. Medical Papers. Vol. II. Memoir and Addresses. Edited and Arranged by Theodore Dyke Acland, M.D.

MONOGRAPHS ON MALARIA:—

On Summer-Autumn Malarial Fevers. By Dr. E. Marchiafava and Dr. A. Bignami. Translated from the first Italian Edition by J. Harry Thompson, M.A., M.D.; and

The Malarial Parasites. A Description based upon observations made by the author and other observers. By Julius Mannaberg, M.D. Illustrated by four Lithographic Plates and six Charts. Translated from the German by R. W. Felkin, M.D., F.R.S.E.

"This important volume is well worthy of the attention of the English reader. . . . . (It) will prove a valuable addition to the admirable series with which the New Sydenham Society is enriching medical literature."—*Lancet.*

"A knowledge of the facts these works describe is indispensable for teachers of medicine and pathology everywhere, and for all practitioners in malarial countries."—*Brit. Medical Journal.*

MICRO-ORGANISMS, WITH SPECIAL REFERENCE TO THE ETIOLOGY OF THE INFECTIOUS DISEASES. By Dr. C. Flügge, O. O. Professor and Director of the Hygienic Institute at Göttingen. Translated by W. Watson Cheyne, M.B., Surgeon to King's College Hospital. With 144 Drawings.

This volume forms an important addition to English medical literature. Flügge's book being justly considered one of the best standard text-books."—*British Medical Journal.*

VACCINATION AND ITS RESULTS. A Report based on the evidence taken by the Royal Commission, 1889-1897. Vol. 1. The text of the Commission Report.

LECTURES ON GENERAL PATHOLOGY. 3 Vols. By Julius Cohnheim. Translated from the Second German Edition by Alexander B. McKee, M.B., Dublin.

"The excellence of the author's work is retained by the care and ability with which the Lectures are done into English by Dr. McKee, and the volumes form a useful and welcome addition to the list of valuable books provided for the profession by the New Sydenham Society."—*Medical Press.*

LECTURES ON CHILDREN'S DISEASES. 2 Vols. By Dr. C. Henoch. Translated from the Fourth Edition (1889) by John Thomson, M.B., F.R.C.P. Edinb.

"It is an exceedingly valuable work, reflecting as it does the very best clinical opinion in Germany. Useful hints may be gathered on almost every page; few authorities are quoted, the author mainly relying on his own varied clinical experience, which has now extended over forty-five years. Dr. Thomson has done his work as a translator well, and has succeeded in producing a readable English version of a most valuable text-book."—*British Medical Journal.*

RECENT ESSAYS BY VARIOUS AUTHORS ON BACTERIA IN RELATION TO DISEASE. Selected and Edited by W. Watson Cheyne, M.B., F.R.C.S.

DISEASES OF DIGESTIVE ORGANS. 2 vols. By Dr. C. A. Ewald. Translated from the Third German Edition (1890) by Robert Saundby, M.D.

GEOGRAPHICAL AND HISTORICAL PATHOLOGY. Three vols. By Dr. Aug. Hirsch. Translated from the Second Edition by Charles Creighton, M.D.

ON THE TEMPERATURE IN DISEASE: A MANUAL OF MEDICAL THERMOMETRY. By Dr. C. A. Wunderlich. (Leipzig.) Translated by Dr. Bathurst Woodman. With forty Woodcuts and seven Lithographs.

LECTURES ON CLINICAL MEDICINE, delivered at the Hôtel Dieu, Paris. By Professor Trousseau. Five Volumes. Vol. 1, translated, with notes and appendices, by the late Dr. Bazire. Vols. 2 to 5, translated from the third edition, revised and enlarged, by Sir John Rose Cormack.

LATHAM'S COLLECTED WORKS. 2 vols. Edited by Dr. Robert Martin. With Memoir of Latham by Sir Thomas Watson.

LOCAL ASPHYXIA AND SYMMETRICAL GANGRENE OF THE EXTREMITIES. By Maurice Raynaud. Translated by Dr. Thomas Barlow.

ON THE NATURE OF MALARIA. By Professors Edwin Klebs and C. Tommasi-Crudeli; and Alterations in the Red Globules in Malaria Infection; and On the Origin of Melanæmia. By Professor Ettore Marchiafava and Dr. A. Celli. Translated by Dr. E. Drummond, of Rome.

CLINICAL LECTURES ON MEDICINE AND SURGERY. Translated from the German, and selected from Professor Volkmann's Series. Three Volumes.

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MEMOIRS ON DIPHTHERIA; containing Memoirs by Bretonneau, Trousseau, Daviot, Guersant, Bouchet, Empis, &c. Selected and Translated by Dr. R. H. Semple.

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A GUIDE TO THE QUALITATIVE AND QUANTITATIVE ANALYSIS OF THE URINE. By Dr. C. NEUBAUER and Dr. J. VOGEL. Fourth edition, considerably enlarged. Translated by WILLIAM O. MARKHAM, F.R.C.P.L. With four Lithographs, and numerous Woodcuts.

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ESSAYS ON ACROMEGALY. By Drs. PIERRE MARIE and SOUZA LEITE. Translated by PROCTER S. HUTCHINSON, M.R.C.S.

AN ATLAS OF ILLUSTRATIONS OF PATHOLOGY COMPILED (CHIEFLY FROM ORIGINAL SOURCES) FOR THE SOCIETY.

The Committee in charge of this work consists of Dr. GEE, Dr. GREEN, Mr. HOLMES, and Mr. HUTCHINSON.

THIRTEEN FASCICULI have been published.

"Of the many valuable works published by this great Society, none are more acceptable to us than the 'Atlas of Pathology.'. . . . Such a vast and desirable undertaking as the publishing of this work is worthy of the Society named after the greatest English physician."—*Medical Press and Circular.*

The following subjects have been illustrated :—

FIRST FASCICULUS.

Diseases of the Kidney.

Scrofula; Syphilis; and Lymph-Adenoma.—Plate I.
5 Figures.

Nephritis after Diphtheria: Scarlet Fever; and Burns.—Plate II.
7 Figures.

The Granular Kidney in different stages.—Plate III.
8 Figures.

Embolism; Infarction Processes from Pyæmia; Jaundice and Purpura; Scrofula.—Plate IV.
6 Figures.

SECOND FASCICULUS.

Diseases of the Kidney, Suprarenal Capsules, and Spleen.

Amyloid Disease and Cancer of the Kidney.—Plate V.
5 Figures.

Various Diseased Conditions of the Spleen.—Plate VI.
5 Figures.

Diseases of the Suprarenal Capsules and Spleen.—Plate VII.
9 Figures.

Microscopic Pathology of Kidneys.—Plate VIII.

20 Figures.—Lardaceous Disease, Contracted Granular Kidney, Catarrhal Nephritis, Casts.

Microscopic Pathology of the Kidney and Spleen.—Plate IX.

23 Figures.—Scarlatinal Nephritis, Fatty and Cystic Degeneration, Interstitial Nephritis, &c., Spleen in Hodgkin's Disease, Adenoma of Suprarena Capsule, &c.

Microscopic Pathology of Spleen and Suprarenals.—Plate X.

15 Figures.—Leucocythæmic Spleen, Muscular Hypertrophy, Tubercle of Spleen, Addison's Disease of Suprarenals.

With Essay on the Pathology of the Kidney, by Dr. Greenfield. Essay on the Pathology of the Spleen and Suprarenals, by Dr. Goodhart.

THIRD FASCICULUS.

Diseases of the Liver.

Lymph-Adenoma of Liver.—Plate XI.

Plate XII.

Fig. 1. Dilatation of the Bile Ducts in the Liver from pressure of a gall stone in cystic duct.

Fig. 2. Cancer of the Liver, with dilatation of the ducts and staining of the hepatic tissue.

Plate XIII.

Syphilitic Cirrhosis of the Liver.

Plate XIV.

Fig. 1. Red Atrophy, with acute Yellow Atrophy of the Liver.

Fig. 2. Microscopical appearances of the yellow swollen parts of the Liver (Acute Yellow Atrophy).

Fig. 3. Microscopical appearances of Red Atrophy of the Liver.

Plate XV.

Fig. 1. Lardaceous Liver.

Fig. 2. Lardaceous Liver, showing the iodine reaction.

Plate XVI.

Fig. 1. Cancer of the Liver.

Fig. 2. Nutmeg Liver, Chronic Congestion, and Atrophy of the Liver from mitral disease.

"We look on this Pathological Atlas, in all its three fasciculi, as one of the best things that the Society has as yet done. The illustrations are nearly life size; the colouring is beautiful and true to nature; and we have not seen in this or any other country any work of this kind that satisfied us so much. Taken alone, it would be well worth the annual guinea; and will, when finished, constitute a treatise which every practising physician should possess." —*Medical Press and Circular.*

FOURTH FASCICULUS.

Diseases of the Liver, including one Figure of Spleen.

Diseases of the Liver and Spleen.—Plate XVII.

Fig. 1. Cirrhosis of the Liver resembling the Nutmeg Liver.

Fig. 2. Brown Atrophy of the Liver.

Fig. 3. Cirrhosis of the Liver.

Fig. 4. Lymph-Adenoma of the Spleen (Hodgkin's Disease).

Diseases of the Liver.—Plate XVIII.

Fig. 1. Fatty Liver from Poisoning by Phosphorus.

Fig. 2. Cirrhosis of the Liver.

Fig. 3. Tubercular Liver.

Fig. 4. Cirrhosis of the Liver.

Diseases of the Liver.—Plate XIX.

Cystic Disease of the Liver.

Microscopic Pathology of the Liver.—Plate XX.

Fig. 1. Lardaceous Disease of the Liver. Fig. 2. Fatty Liver. Fig. 3. Early Cirrhosis. Figs. 4 & 5. Cirrhosis of the Liver (after Hamilton). Fig. 6. Cirrhosis of the Liver. Fig. 7. A Vegetation from the surface of the Liver. Fig. 8. Spindle-cell Sarcoma of the Liver. Fig. 9. Disseminated Growths of Fibrous Nature in the Liver. Fig. 10. Lardaceous Disease of the Liver. Fig. 11. Cavernous Tumour in the Liver. Fig. 12. Acute Yellow Atrophy of the Liver. Fig. 13. Cavernous Tumour in the Liver. Fig. 14. Early Cirrhosis. Fig. 15. Columnar Epithelioma of the Liver.

Microscopic Pathology of the Liver.—Plate XXI.

Fig. 1. Cirrhosis of the Liver. Fig. 2. Cirrhosis of the Liver. Fig. 3. Monolobular Cirrhosis. Fig. 4. The Nutmeg Liver (Romose Atrophy of Moxon). Fig. 5. Tubercular Liver. Fig. 6. The Nutmeg Liver. Fig. 7. Miliary Gummata. Fig. 8. Idiopathic Anæmia. Figs. 9 & 10. Cancer of the Bile Ducts. Fig. 11. Cancer spreading from the Biliary Ducts. Fig. 12. Early Gummatous Infiltration of the Liver. Fig. 13. "Common" Cirrhosis. Fig. 14. Tubercular Liver. Fig. 15. Idiopathic Anæmia.

Microscopic Pathology of the Liver.—Plate XXII.

Fig. 1. "Pericellular" Cirrhosis. Fig. 2. Cirrhosis of the Liver. Fig. 3. Nutmeg Liver. Fig. 4. Cystic Liver. Fig. 5. Cystic Liver. Fig. 6. Early Cancer of the Liver. Fig. 7. Extreme Tubercular Disease of the Liver. Fig. 8. Brown Atrophy of the Liver. Fig. 9. Extreme Tubercular Disease. Fig. 10. Myxœdematous Liver. Figs. 11, 12 & 13. "Contracting Scirrhus of the Liver simulating Cirrhosis." Figs. 14, 15 & 16. Varieties of Cell Vacuolation and Proliferation. Fig. 17. Primary Adenoma of the Liver. Fig. 18. Leukæmic Liver. Fig. 19. Primary Adenoma of the Liver.

FIFTH FASCICULUS.

Diseases of the Liver (chiefly of the Gall-Bladder and Larger Bile Ducts).

Syphilitic and Lardaceous Disease of the Liver.—Plate XXIII.

Diseases of the Liver.—Plate XXIV.

Fig. 1. Abscesses in the Liver.

Fig. 2. Papilloma of the Gall-Bladder.

Diseases of the Liver.—Plate XXV.

Cancer of Gall-Bladder and Liver.

Gall-stones, with Obstruction and Dilatation of the Cystic Duct.

Diseases of the Liver.—Plate XXVI.

Cancer of the Stomach extending to the Cystic Duct.

SIXTH FASCICULUS.

Hydatid Cysts of the Liver.—Plate XXVII.

Urinary Calculi.—Plates XXVIII. to XXXI.

Comprising 46 Figures.

"Of the many valuable works published by this great Society, none are more acceptable to us than this Atlas of Pathology, of which we have received the sixth fasciculus. Such a vast and desirable undertaking as the publishing of this work is worthy of the Society named after the greatest English physician. . . . . Wet hink that no medical man will be consulting his best interests if he hesitates to become a member of the Society. He certainly will have no more useful books than those bearing the medallion of the immortal Sydenham."—*Medical Press and Circular.*

SEVENTH FASCICULUS.

Urinary Calculi and Gall Stones.—Plate XXXII.

Enlargement of the Prostate Gland.—Plate XXXIII.

Enlargement of Prostate, Urinary Calculi.—Plate XXXIV.

Osteitis Deformans (Paget's Disease).—Plate XXXV.

Comprising 30 Figures.

EIGHTH FASCICULUS.

DISEASES OF BRAIN AND SPINAL CORD.

Plate XXXVI.

Fig. 1. Hydatid in the Posterior Corner of the Right Lateral Ventricle.

Fig. 2. Abscess on the Under Surface of the Right Cerebellar Hemisphere, close to the Petrous Portion of the Temporal Bone.

Plate XXXVII.

Fig. 1. Hæmorrhage into the Right Hemisphere and Median Lobe of the Cerebellum.

Fig. 2. Tubercles of various sizes situated on the Upper Surface of the Cerebellar Hemispheres.

Fig. 3. A Tuberculous Tumour situated between the left side of the Pons Varolii, the Medulla Oblongata, and the adjacent surface of the Cerebellar Hemisphere.

Plate XXXVIII.

Fig. 1. A severely crushed Spinal Cord.

Fig. 2. The Cervical Spinal Cord of a Man who had died under almost precisely similar conditions to those specified in the preceding case.

Fig. 3. Hæmorrhage external to the Vertebral Theca.

Plate XXXIX.

Figs. 1, 2, & 3. A Tuberculous Tumour on the Spinal Dura Mater.

Plate XL.

Fig. 1. Cartilaginous Deposits on the Spinal Arachnoid.

Fig. 2. Myelitis after Concussion of the Spine.

Plate XLI.

Fig. 1. Tubercle in Pia Mater of Cord.

Fig. 2. A Fibrous Tumour lodged in the Cauda Equina.

"The New Sydenham Society is doing good service in issuing a series of pathological drawings, which are extremely well executed and faithful. . . . . The explanatory text is clear and concise; and indeed the whole production is highly creditable to the Society, and will be much appreciated by its members." —*Lancet*, Jan. 2, 1893.

NINTH FASCICULUS.

DISEASES OF THE TESTIS. (Part I.)

Plate XLII.

Fig. 1. Hydrocele of the Spermatic Cord.

Fig. 2. ,, ,, Epididymis.

Fig. 3. Pedunculated Cartilaginous Body attached to the Globus Major.

Fig. 4. A Calcareous Plate in the Tunica Vaginalis, that portion immediately covering the Testis.

Fig. 5. A number of Calcareous and Cartilaginous Bodies formed in the Visceral Layer of the Tunica Vaginalis, and on the Globus Major of the Epididymis.

Fig. 6. A Multilocular Cyst developed between the Tunica Vaginalis and the Tunica albuginea.

Fig. 7. A Hydrocele of the upper part of the Tunica Vaginalis, the lower part having become obliterated by adhesion to the Testicle, which is seen in section.

Plate XLIII.

Fig. I. The Common Hydrocele of the Tunica Vaginalis.

Fig. II. A Varicocele of moderate size unravelled.

Fig. III. A large Varicocele.

Plate XLIV.

Fig. I. Undescended and Atrophied Testis.

Fig. II. Atrophy (extreme) of one Testicle and Epididymis.

Fig. III. Cystic Disease (? Sarcoma) of the Testis.

Plate XLV.

SYPHILIS OF THE TESTICLE.

Fig. 1. Breaking down Gumma in the Testis.

Fig. 2. Gumma of the Testis due to Inherited Syphilis.

Figs. 3 & 4. Gummatous Disease of Testis and Lung.

Fig. 5. Gummatous deposit in Testis and Epididymis from acquired Syphilis.

Fig. 6. Gummatous Disease of the Testis, with great enlargement of the Organ.

Plate XLVI.

TUMOURS OF THE TESTICLE (3 figs.); GUMMA OF THE TESTICLE (1 fig.)

Fig. 1. Medullary Cancer.

Fig. 2. Cystic Chondro-Sarcoma.

Fig. 3. Gumma of Testicle, with Hydrocele.

Fig. 4. A Sarcoma involving the whole Testicle, and spreading up the Spermatic Cord.

TENTH FASCICULUS.

DISEASES OF THE TESTIS. (Part II.)

Plate XLVII.

Fig. 1. Sarcoma (Round-celled or Lympho-Sarcoma) of the Testicle.

Fig. 2. View of an Anterior-posterior Section of the above Tumour, showing a greyish-brown surface obscurely divided into Lobes.

Fig. 3. A slowly-growing Tumour of the Testicle, probably of Sarcomatous nature.

Plate XLVIII.

Fig. 1. Hydrocele of the Tunica Albuginea.

Fig. 2. Malignant Tumour of the Testis, from a boy aged two years.

Fig. 3. Hæmorrhagic Sarcoma of Testicle.

Plate XLIX.

MISPLACED TESTICLE IN THE PERINEUM.

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4. VAN DER KOLK on the Spinal Cord, &c.
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6. Dr. BRIGHT on Abdominal Tumours.
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40. Catalogue of Atlas of Skin Diseases. (First Part.)

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